



TENNESSEE SUPPLEMENT INFORMATION FOR CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

FY 2018 General & FY 2019 Renewal

States are required by National Headquarters to provide state specific supplemental guidance to some national enhancements. The supplement information details additional criteria, implementation, and documentation requirements for Tennessee* in a specified fiscal year (FY). The supplement information must be met for the enhancement to meet the implementation and documentation requirements for certification of completion. If there are any questions related to enhancement and supplement requirements the District Conservationist and state technical lead can provide additional clarification.

*State supplement information may differ between states and are updated each fiscal year. A participant is required to implement the enhancement requirements of the state in which the contract is obligated and managed.

The supplement information below corresponds with all FY 2018 General and FY 2019 Renewal conservation activities.

It is important to work with your local field office to be knowledgeable of which additional requirements are required prior to, during, and after enhancement implementation.



TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION
STEWARDSHIP
PROGRAM

E327136Z1

Conservation Cover to provide food habitat for pollinators
and beneficial insects

Conservation Practice 327: Conservation Cover

Additional Criteria for TN

POLLINATORS

- In addition to the criteria specified in the National job sheet E327136Z1 the following additional criteria apply in TN for Wildlife Habitat Approved Planting Mixtures:
- **Follow recommended mixture approved by NRCS Area Biologist or NRCS Partner Biologist or from the pre-approved list (if provided).**
- If addressing beneficial insects, at least 50% of planting is required to be a beneficial insect planting. Pollinator mixes qualify as the beneficial insect planting.
- No more than 50% of the pollinator habitat acres can be shrubs. Shrub Planting – An equal mixture of 3 or more species (only one sumac species). Consider mixtures that provide the longest bloom period possible through the growing season. All shrubs are planted on an 8x8 foot spacing between 12/1 and 4/1. Many shade tolerant species do well in full sun and will produce more flowers with more light exposure.

BENEFICIALS

- Beneficial Insects:
 - Step 1. Target Pest and Associated Beneficial Insect: For specific information on beneficial insects, target insects controlled, and plants for attracting beneficial insects, refer to the ATTRA publication *Farm Scaping to Enhance*

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CONSERVATION STEWARDSHIP PROGRAM

Biological Control, Appendix B at:

<http://www.attra.org/attra-pub/farmscape.html>.

- Step 2. Select Beneficial Insect and Plant Species from the table Plant Species to Formulate Mixtures at the end of the supplement. Mixtures should be designed to provide blooming plants attractive to predacious insects that would feed on pest insects in the cash crop. The table below provides common flowering plant materials used in integrated pest management. **Mixtures should consist of at least 1-2 plant species for each blooming period (Spring, Summer, Fall) within the cropping season of the target crop. Plantings should consist of diversity of plants with at least 3-6 species in the mix.**

- Beneficial Insects for Pest Management References:

ATTRA publication *FarmScaping to Enhance Biological Control*;

<http://www.attra.org/attra-pub/farmscape.html>

For specific information on beneficial insects (Arthropods) and their prey, refer to UT Extension publication W127

Common Beneficial Arthropods Found in Field Crops;

<http://www.utextension.utk.edu/publications/wfiles/W127.pdf>

If habitat is part of an organic farming operation, only materials allowed according to the USDA National Organic Program’s National List of Allowed and Prohibited Substances may be used. Refer to:

<http://www.ams.usda.gov/AMSV1.0/ams.fetchTemplateData.do?template=TemplateN&navID=NationalListLinkNOPNationalOrganicProgramHome&rightNav1=NationalListLinkNOPNationalOrganicProgramHome&topNav=&leftNav=&page=NOPNationalList&resultType=7acct=nopgeninfo>



Pollinator and Beneficial Species Plantings Site Suitability Recommendations for USDA-NRCS Tennessee

CONSERVATION STEWARDSHIP PROGRAM

Revised: 3/15/18

A site-specific and species-specific wildlife habitat mixture is preferred for all situations. This guidance document is intended to assist NRCS conservation planners address resource concerns and limiting habitat factors identified in the TN NRCS Wildlife Habitat Evaluation Guide (WHEG). General native grass and pollinator habitat mixes are not noted in this document. **Contact a NRCS Biologist or NRCS Partner Biologist for assistance with developing any mixes.**

Financially assisted participants are required to follow specific program guidelines for vegetation establishment; refer to program specific requirements (i.e. Practice Standard, Requirement Sheet, Enhancement Criteria, TN Supplemental Guidance, etc. as applicable by program year).

NATIVE BUNCH GRASS		
Seeding Dates: December 1 – June 1		
Species	Height	Growth Conditions
Big bluestem	4' – 10'	Warm season, perennial, full sun, dry to moist sites
Little bluestem	2' – 4'	Warm season, perennial, full sun, dry to moist sites
Indiangrass	3' – 6'	Warm season, perennial, full sun, dry to moist sites
Sideoats grama	1' - 3'	Warm season, perennial, full sun, dry to moist sites
Switchgrass	3' – 7'	Warm season, perennial, full sun, dry to wet sites
Eastern gammagrass	4' – 8'	Warm season, perennial, full sun to partial shade, dry to wet sites
Virginia Wild Rye	2 – 4'	Cool season, perennial, partial shade, moist sites
<i>* Native grass seeding rates are based on Pure Live Seed (PLS) per acre instead of total weight.</i>		
<i>* Diverse mixes are encouraged to include native forbs per a biologist's recommendation.</i>		
<i>*Proper planting depth and site prep. herbicide is critical to successful establishment. See reference materials or contact biologist for guidance.</i>		



CONSERVATION STEWARDSHIP PROGRAM

FORBS_Pollinator		
Seeding Dates: December 1 – June 1		
Species & Lifespan*	Bloom Period & Color*	Site Conditions Range*
Lanceleaf coreopsis (P)	spring, mid-summer (Y)	moist to dry, full sun
Purple prairieclover (P)	spring, mid-summer (Pi)	moist to dry, full sun
Illinois bundleflower (P)	spring, mid-summer (W)	dry to wet, full sun
Butterfly milkweed (P)	late spring, summer (O)	moist to dry, full sun
Common Milkweed (P)	late spring, summer (Pi)	moist to dry, full sun
Blue wild indigo (P)	late spring , summer (Pu)	moist to dry, full sun
Pale purple coneflower (P)	late spring, summer (Pu)	moist to dry, partial shade
Purple coneflower (P)	late spring, summer, fall (Pu)	dry to wet, partial shade
False sunflower (P)	late spring, summer, fall (Y)	dry to wet, full sun
Gray-headed coneflower (P)	late spring, summer, fall (Y)	moist to dry, full sun
Black-eyed susan (B)	late spring, summer, fall (Y)	moist to dry, full sun
Partridge pea (A)	summer, fall (Y)	moist to dry, full sun
Cardinal Flower (P)	summer, fall (R)	moist to wet, partial shade
Tick-trefoil (Desmodium sp.) (P)	summer, fall (Pi)	moist to dry, partial shade
Maximillian sunflower (P)	summer, fall (Y)	dry to wet, full sun
Mexican hat (P)	summer, fall (Y)	moist to dry, full sun
Rigid goldenrod (P)	late summer, fall (Y)	moist to dry, full sun
<i>*Lifespan: (A)=Annual, (B)=Biennial, (P)=Perennial</i>		
<i>*Bloom color: (Y)=Yellow, (R)=Red, (O)=Orange, (W)=White, (Pi)=Pink, (Pu)=Purple</i>		
<i>*Dry = drier than a well-drained soil; tending toward droughty.</i>		
<i>*Moist = wetter than moderately well drained soils; good moisture holding capacity but generally not hydric.</i>		
<i>*Wet = wetter than a well-drained soil; may be a hydric soil due to persistent high water table.</i>		



CONSERVATION STEWARDSHIP PROGRAM

SHRUBS_Pollinator			
Planting Dates: November 1 – April 15 (November 15 – April 1, West TN Only)			
Species	Bloom Period	Shade Tolerance	Site Condition Range*
Crabapple	spring	intolerant	moist, well drained
Dogwood, Silky	spring		moist, well to poorly drained
Plum, Chickasaw	spring		dry, well drained
Plum, American	spring		moist, well drained
Alder, Smooth	spring	intermediate	moist, well to poorly drained
Hazelnut, American	spring		moist to dry, well drained
Blueberry	spring		moist to dry, well drained
Chinkapin, Allegheny	late spring		dry, well drained
Indigobush	late spring	intolerant	moist to mod. well drained
Sumac, Fragrant	late spring	intermediate	dry, well drained
Blue Wild Indigo ¹	late spring	intolerant	moist to dry, well drained
Beautyberry, American	summer		moist to mod. well drained
Elderberry	summer		moist, poorly drained
Sumac, Winged	summer	intolerant	dry, well drained
Sumac, Staghorn	summer	tolerant	dry, well drained
Sumac, Smooth	summer	intolerant	dry, well drained
Viburnum, Mapleleaf	summer	tolerant	moist to dry, well drained
<i>* Recommended to select ≥ 3 species, only 1 sumac species per planting mixture.</i>			
<i>*Dry = drier than a well-drained soil; tending toward droughty.</i>			
<i>*Moist=wetter than moderately well drained soils; good moisture holding capacity but generally not hydric.</i>			
<i>*Wet=wetter than a well-drained soil; may be a hydric soil due to persistent high water table.</i>			
<i>*Well drained = good drainage but not rapid; typically a loamy soil with adequate plant available water.</i>			
<i>*Poorly drained = generally a hydric soil due to persistent high water table.</i>			
<i>¹Blue wild indigo is a forb but provides shrubby structure and may be used as a shrub.</i>			

TREE / SHRUB SPACING TABLE		
Spacing	No. per acre	Common Uses
8' x 8'	681	Shrub plantings for wildlife. Conifer plantings for timber product.
8' x 10'	544	



CONSERVATION STEWARDSHIP PROGRAM

10' x 10'	436	
10' x 12'	363	Riparian buffers. Hardwoods planted for sawtimber.
12' x 12'	302	Riparian buffers. Hardwoods planted for sawtimber. Wildlife tree plantings.
15' x 15'	194	Some hardwoods planted for sawtimber. Some wildlife tree plantings.
17' x 17'	150	Low density: high quality
20' x 20'	109	Most production of some hardwoods.

Beneficial Species List

Select Beneficial Insect and Plant Species from the following table: PLANT SPECIES TO FORMULATE MIXTURES

Mixtures should be designed to provide blooming plants attractive to predacious insects that would feed on pest insects in the cash crop. The table below provides common flowering plant materials used in integrated pest management. **Mixtures should consist of at least 1-2 plant species for each blooming period (Spring, Summer, Fall) within the cropping season of the target crop. Plantings should consist of a diversity of plants with at least 3-6 species in the mix.**

Plant Species (A or P)*	Peak Bloom Period	Seeding Rate** Lb/Ac	Seeding Date***	Common Beneficial Insects	Trap Crop (Y or blank) (crop:pest insect controlled)
Alfalfa (P)	May	7 – 20	CS fall or spring	Damsel bug, minute pirate bug	Y
Buckwheat (A)	21 day after planting	35	WS	Braconid wasp, hover flies, tachinid flies, lacewings, ladybug, chalcid wasp, minute pirate bug	Y (Truck Crops; aphids)
Butterfly weed (P)	July	2	WS	Ladybug	
Clover, white (P)	June	1-2	CS fall or spring	Aphid parasites, braconid wasp, ground beetle, chalcid wasp	
Clover, crimson (A)	May	15 - 20	CS fall or spring	Ladybug, minute pirate bug	



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Clover, berseem (A)	June	15 - 20	CS spring	Big eyed bug	
Coreopsis, lanceleaf (P)	July	2	WS	Lacewing, ladybug, hover fly, white fly parasite wasp	
Corn (A)	July	13 - 100	WS	Minute pirate bug, lacewing	Y
Cowpea (A)	July	75	WS	Braconid wasp, chalcid wasp	Y
Goldenrod, Rigid (P)	September	0.5	WS	Damsel bug, lacewing, ladybug, minute pirate bug, spined soldier bug, tachinid fly, white fly parasite wasp	
Goldenrod, showy (P)	September	0.25	WS	Damsel bug, lacewing, ladybug, minute pirate bug, spined soldier bug, tachinid fly, white fly parasite wasp	
Rye, cereal (A)	May	30 - 100	CS fall or spring	Ladybug	Y
Sorghum, grain (A)		10 - 30	WS		Y
Sunflower, Ashy (P)	August	2	WS	Braconid wasp, damsel bug, lacewing, ladybug, minute pirate bug, spined soldier bug, hover fly, white fly wasp	
Sunflower, Maximilian (P)	August	1	WS	Braconid wasp, damsel bug, lacewing, ladybug, minute pirate bug, spined soldier bug, hover fly, white fly wasp	
Sunflower, native (P)	August	10	WS	Braconid wasp, damsel bug, lacewing, ladybug, minute pirate bug, spined soldier bug, hover fly, white fly wasp	
Vetch, hairy (A)	May	7 - 20	CS fall or spring	Braconid wasp, minute pirate bug, chalcid wasp	
Yarrow, common (P)	July	2	WS	Braconid wasp, chalcid wasp, damsel bug, ladybug, minute pirate bug, spined soldier bug, hover fly, white fly wasp	



**TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY**

**CONSERVATION
STEWARDSHIP
PROGRAM**

E327136Z2

Establish Monarch butterfly habitat

Conservation Practice 327: Conservation Cover

Additional Criteria for TN

- In addition to the criteria specified in the National job sheet E327136Z2 the following additional criteria apply in TN for Wildlife Habitat Approved Planting Mixtures for the Monarch butterfly:
- Follow approved Monarch mixture provided below or as approved by NRCS Area Biologist or NRCS Partner Biologist. Min. 15 % milk weeds; 20% grass; 65 % forbs
- 50% of planting is required to be a beneficial insect planting. Pollinator mixes qualify as the beneficial insect planting.
- Grazing NOT allowed.



CONSERVATION STEWARDSHIP PROGRAM

Wildlife Habitat Approved Planting Mixtures for the Monarch butterfly:

Monarch Approved Mixture:

Butterfly Weed	1.1 lbs/ac	Maximillian Sunflower	2.0 oz/ac
Common Milkweed	1.2 lbs/ac	Purple Coneflower	4.0 oz/ac
Swamp Milkweed	0.88 lbs/ac	Tall Tickseed	2.0 oz/ac
Switchgrass	0.25 lbs/ac	Rattlesnake Master	2.0 oz/ac
Little Bluestem	0.5 lbs/ac	Lanceleafed Coreopsis	2.0 oz/ac
Red Top	1.0 lbs/ac	Iron Weed	1.0 oz/ac
Side Oats Grama	0.5 lbs/ac	False Sunflower	1.0 oz/ac
Black eyed susan	1.0 oz/ac	Clasping Coneflower	0.5 oz/ac
Bergamot	0.6 oz/ac		



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E327137Z

Conservation cover to provide cover and shelter habitat for
pollinators and beneficial insects

Conservation Practice 327: Conservation Cover

Additional Criteria for TN

POLLINATORS

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Revised: 3/15/18

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NATIVE BUNCH GRASS		
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<i>* Native grass seeding rates are based on Pure Live Seed (PLS) per acre instead of total weight.</i>		
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CONSERVATION STEWARDSHIP PROGRAM

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Butterfly milkweed (P)	late spring, summer (O)	moist to dry, full sun
Common Milkweed (P)	late spring, summer (Pi)	moist to dry, full sun
Blue wild indigo (P)	late spring , summer (Pu)	moist to dry, full sun
Pale purple coneflower (P)	late spring, summer (Pu)	moist to dry, partial shade
Purple coneflower (P)	late spring, summer, fall (Pu)	dry to wet, partial shade
False sunflower (P)	late spring, summer, fall (Y)	dry to wet, full sun
Gray-headed coneflower (P)	late spring, summer, fall (Y)	moist to dry, full sun
Black-eyed susan (B)	late spring, summer, fall (Y)	moist to dry, full sun
Partridge pea (A)	summer, fall (Y)	moist to dry, full sun
Cardinal Flower (P)	summer, fall (R)	moist to wet, partial shade
Tick-trefoil (Desmodium sp.) (P)	summer, fall (Pi)	moist to dry, partial shade
Maximillian sunflower (P)	summer, fall (Y)	dry to wet, full sun
Mexican hat (P)	summer, fall (Y)	moist to dry, full sun
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<i>*Dry = drier than a well-drained soil; tending toward droughty.</i>		
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CONSERVATION STEWARDSHIP PROGRAM

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Planting Dates: November 1 – April 15 (November 15 – April 1, West TN Only)			
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Plum, Chickasaw	spring		dry, well drained
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Hazelnut, American	spring		moist to dry, well drained
Blueberry	spring		moist to dry, well drained
Chinkapin, Allegheny	late spring		dry, well drained
Indigobush	late spring	intolerant	moist to mod. well drained
Sumac, Fragrant	late spring	intermediate	dry, well drained
Blue Wild Indigo ¹	late spring	intolerant	moist to dry, well drained
Beautyberry, American	summer		moist to mod. well drained
Elderberry	summer		moist, poorly drained
Sumac, Winged	summer	intolerant	dry, well drained
Sumac, Staghorn	summer	tolerant	dry, well drained
Sumac, Smooth	summer	intolerant	dry, well drained
Viburnum, Mapleleaf	summer	tolerant	moist to dry, well drained
<i>* Recommended to select ≥ 3 species, only 1 sumac species per planting mixture.</i>			
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<i>*Well drained = good drainage but not rapid; typically a loamy soil with adequate plant available water.</i>			
<i>*Poorly drained = generally a hydric soil due to persistent high water table.</i>			
<i>¹Blue wild indigo is a forb but provides shrubby structure and may be used as a shrub.</i>			

TREE / SHRUB SPACING TABLE		
Spacing	No. per acre	Common Uses
8' x 8'	681	Shrub plantings for wildlife. Conifer plantings for timber product.



CONSERVATION STEWARDSHIP PROGRAM

8' x 10'	544	
10' x 10'	436	
10' x 12'	363	Riparian buffers. Hardwoods planted for sawtimber.
12' x 12'	302	Riparian buffers. Hardwoods planted for sawtimber. Wildlife tree plantings.
15' x 15'	194	Some hardwoods planted for sawtimber. Some wildlife tree plantings.
17' x 17'	150	Low density: high quality
20' x 20'	109	Mast production of some hardwoods.

Beneficial Species List

Select Beneficial Insect and Plant Species from the following table: PLANT SPECIES TO FORMULATE MIXTURES

Mixtures should be designed to provide blooming plants attractive to predacious insects that would feed on pest insects in the cash crop. The table below provides common flowering plant materials used in integrated pest management. **Mixtures should consist of at least 1-2 plant species for each blooming period (Spring, Summer, Fall) within the cropping season of the target crop. Plantings should consist of a diversity of plants with at least 3-6 species in the mix.**

Plant Species (A or P)*	Peak Bloom Period	Seeding Rate** Lb/Ac	Seeding Date***	Common Beneficial Insects	Trap Crop (Y or blank) (crop:pest insect controlled)
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Buckwheat (A)	21 day after planting	35	WS	Braconid wasp, hover flies, tachinid flies, lacewings, ladybug, chalcid wasp, minute pirate bug	Y (Truck Crops; aphids)
Butterfly weed (P)	July	2	WS	Ladybug	
Clover, white (P)	June	1-2	CS fall or spring	Aphid parasites, braconid wasp, ground beetle, chalcid wasp	
Clover, crimson (A)	May	15 - 20	CS fall or spring	Ladybug, minute pirate bug	



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Clover, berseem (A)	June	15 - 20	CS spring	Big eyed bug	
Coreopsis, lanceleaf (P)	July	2	WS	Lacewing, ladybug, hover fly, white fly parasite wasp	
Corn (A)	July	13 - 100	WS	Minute pirate bug, lacewing	Y
Cowpea (A)	July	75	WS	Braconid wasp, chalcid wasp	Y
Goldenrod, Rigid (P)	September	0.5	WS	Damsel bug, lacewing, ladybug, minute pirate bug, spined soldier bug, tachinid fly, white fly parasite wasp	
Goldenrod, showy (P)	September	0.25	WS	Damsel bug, lacewing, ladybug, minute pirate bug, spined soldier bug, tachinid	
Rye, cereal (A)	May	30 - 100	CS fall or spring	Ladybug	Y
Sorghum, grain (A)		10 - 30	WS		Y
Sunflower, Ashy (P)	August	2	WS	Braconid wasp, damsel bug, lacewing, ladybug, minute pirate bug, spined soldier bug, hover fly, white fly wasp	
Sunflower, Maximilian (P)	August	1	WS	Braconid wasp, damsel bug, lacewing, ladybug, minute pirate bug, spined soldier bug, hover fly, white fly wasp	
Sunflower, native (P)	August	10	WS	Braconid wasp, damsel bug, lacewing, ladybug, minute pirate bug, spined soldier bug, hover fly, white fly wasp	
Vetch, hairy (A)	May	7 - 20	CS fall or spring	Braconid wasp, minute pirate bug, chalcid wasp	
Yarrow, common (P)	July	2	WS	Braconid wasp, chalcid wasp, damsel bug, ladybug, minute pirate bug, spined soldier bug, hover fly, white fly wasp	



TENNESSEE SUPPLEMENT TO
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E327139Z

Conservation Cover to provide habitat continuity for
pollinators and beneficial insects

Conservation Practice 327: Conservation Cover

Additional Criteria for TN

POLLINATORS

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- **Follow recommended mixture approved by NRCS Area Biologist or NRCS Partner Biologist or from the pre-approved list (if provided).**
- If addressing beneficial insects, at least 50% of planting is required to be a beneficial insect planting. Pollinator mixes qualify as the beneficial insect planting.
- No more than 50% of the pollinator habitat acres can be shrubs. Shrub Planting – An equal mixture of 3 or more species (only one sumac species). Consider mixtures that provide the longest bloom period possible through the growing season. All shrubs are planted on an 8x8 foot spacing between 12/1 and 4/1. Many shade tolerant species do well in full sun and will produce more flowers with more light exposure.

BENEFICIALS

- Beneficial Insects:
 - Step 1. Target Pest and Associated Beneficial Insect: For specific information on beneficial insects, target insects controlled, and plants for attracting beneficial insects, refer to the ATTRA publication *Farm Scaping to Enhance*

E327139Z - Conservation cover to provide habitat continuity for pollinators and beneficial insects	December 2017	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

Biological Control, Appendix B at:

<http://www.attra.org/attra-pub/farmscape.html>.

- Step 2. Select Beneficial Insect and Plant Species from the table Plant Species to Formulate Mixtures at the end of the supplement. Mixtures should be designed to provide blooming plants attractive to predacious insects that would feed on pest insects in the cash crop. The table below provides common flowering plant materials used in integrated pest management. **Mixtures should consist of at least 1-2 plant species for each blooming period (Spring, Summer, Fall) within the cropping season of the target crop. Plantings should consist of diversity of plants with at least 3-6 species in the mix.**

- Beneficial Insects for Pest Management References:

ATTRA publication *FarmScaping to Enhance Biological Control*;

<http://www.attra.org/attra-pub/farmscape.html>

For specific information on beneficial insects (Arthropods) and their prey, refer to UT Extension publication W127

Common Beneficial Arthropods Found in Field Crops;

<http://www.utextension.utk.edu/publications/wfiles/W127.pdf>

If habitat is part of an organic farming operation, only materials allowed according to the USDA National Organic Program’s National List of Allowed and Prohibited Substances may be used. Refer to:

<http://www.ams.usda.gov/AMSV1.0/ams.fetchTemplateData.do?template=TemplateN&navID=NationalListLinkNOPNationalOrganicProgramHome&rightNav1=NationalListLinkNOPNationalOrganicProgramHome&topNav=&leftNav=&page=NOPNationalList&resultType=7acct=nopgeninfo>



Pollinator and Beneficial Species Plantings Site Suitability Recommendations for USDA-NRCS Tennessee

CONSERVATION STEWARDSHIP PROGRAM

Revised: 3/15/18

A site-specific and species-specific wildlife habitat mixture is preferred for all situations. This guidance document is intended to assist NRCS conservation planners address resource concerns and limiting habitat factors identified in the TN NRCS Wildlife Habitat Evaluation Guide (WHEG). General native grass and pollinator habitat mixes are not noted in this document. **Contact a NRCS Biologist or NRCS Partner Biologist for assistance with developing any mixes.**

Financially assisted participants are required to follow specific program guidelines for vegetation establishment; refer to program specific requirements (i.e. Practice Standard, Requirement Sheet, Enhancement Criteria, TN Supplemental Guidance, etc. as applicable by program year).

NATIVE BUNCH GRASS		
Seeding Dates: December 1 – June 1		
Species	Height	Growth Conditions
Big bluestem	4' – 10'	Warm season, perennial, full sun, dry to moist sites
Little bluestem	2' – 4'	Warm season, perennial, full sun, dry to moist sites
Indiangrass	3' – 6'	Warm season, perennial, full sun, dry to moist sites
Sideoats grama	1' - 3'	Warm season, perennial, full sun, dry to moist sites
Switchgrass	3' – 7'	Warm season, perennial, full sun, dry to wet sites
Eastern gammagrass	4' – 8'	Warm season, perennial, full sun to partial shade, dry to wet sites
Virginia Wild Rye	2 – 4'	Cool season, perennial, partial shade, moist sites
<i>* Native grass seeding rates are based on Pure Live Seed (PLS) per acre instead of total weight.</i>		
<i>* Diverse mixes are encouraged to include native forbs per a biologist's recommendation.</i>		
<i>*Proper planting depth and site prep. herbicide is critical to successful establishment. See reference materials or contact biologist for guidance.</i>		



CONSERVATION STEWARDSHIP PROGRAM

FORBS_Pollinator		
Seeding Dates: December 1 – June 1		
Species & Lifespan*	Bloom Period & Color*	Site Conditions Range*
Lanceleaf coreopsis (P)	spring, mid-summer (Y)	moist to dry, full sun
Purple prairieclover (P)	spring, mid-summer (Pi)	moist to dry, full sun
Illinois bundleflower (P)	spring, mid-summer (W)	dry to wet, full sun
Butterfly milkweed (P)	late spring, summer (O)	moist to dry, full sun
Common Milkweed (P)	late spring, summer (Pi)	moist to dry, full sun
Blue wild indigo (P)	late spring , summer (Pu)	moist to dry, full sun
Pale purple coneflower (P)	late spring, summer (Pu)	moist to dry, partial shade
Purple coneflower (P)	late spring, summer, fall (Pu)	dry to wet, partial shade
False sunflower (P)	late spring, summer, fall (Y)	dry to wet, full sun
Gray-headed coneflower (P)	late spring, summer, fall (Y)	moist to dry, full sun
Black-eyed susan (B)	late spring, summer, fall (Y)	moist to dry, full sun
Partridge pea (A)	summer, fall (Y)	moist to dry, full sun
Cardinal Flower (P)	summer, fall (R)	moist to wet, partial shade
Tick-trefoil (Desmodium sp.) (P)	summer, fall (Pi)	moist to dry, partial shade
Maximillian sunflower (P)	summer, fall (Y)	dry to wet, full sun
Mexican hat (P)	summer, fall (Y)	moist to dry, full sun
Rigid goldenrod (P)	late summer, fall (Y)	moist to dry, full sun
<i>*Lifespan: (A)=Annual, (B)=Biennial, (P)=Perennial</i>		
<i>*Bloom color: (Y)=Yellow, (R)=Red, (O)=Orange, (W)=White, (Pi)=Pink, (Pu)=Purple</i>		
<i>*Dry = drier than a well-drained soil; tending toward droughty.</i>		
<i>*Moist = wetter than moderately well drained soils; good moisture holding capacity but generally not hydric.</i>		
<i>*Wet = wetter than a well-drained soil; may be a hydric soil due to persistent high water table.</i>		



CONSERVATION STEWARDSHIP PROGRAM

SHRUBS_Pollinator			
Planting Dates: November 1 – April 15 (November 15 – April 1, West TN Only)			
Species	Bloom Period	Shade Tolerance	Site Condition Range*
Crabapple	spring	intolerant	moist, well drained
Dogwood, Silky	spring		moist, well to poorly drained
Plum, Chickasaw	spring		dry, well drained
Plum, American	spring		moist, well drained
Alder, Smooth	spring	intermediate	moist, well to poorly drained
Hazelnut, American	spring		moist to dry, well drained
Blueberry	spring		moist to dry, well drained
Chinkapin, Allegheny	late spring		dry, well drained
Indigobush	late spring	intolerant	moist to mod. well drained
Sumac, Fragrant	late spring	intermediate	dry, well drained
Blue Wild Indigo ¹	late spring	intolerant	moist to dry, well drained
Beautyberry, American	summer		moist to mod. well drained
Elderberry	summer		moist, poorly drained
Sumac, Winged	summer	intolerant	dry, well drained
Sumac, Staghorn	summer	tolerant	dry, well drained
Sumac, Smooth	summer	intolerant	dry, well drained
Viburnum, Mapleleaf	summer	tolerant	moist to dry, well drained
<i>* Recommended to select ≥ 3 species, only 1 sumac species per planting mixture.</i>			
<i>*Dry = drier than a well-drained soil; tending toward droughty.</i>			
<i>*Moist=wetter than moderately well drained soils; good moisture holding capacity but generally not hydric.</i>			
<i>*Wet=wetter than a well-drained soil; may be a hydric soil due to persistent high water table.</i>			
<i>*Well drained = good drainage but not rapid; typically a loamy soil with adequate plant available water.</i>			
<i>*Poorly drained = generally a hydric soil due to persistent high water table.</i>			
<i>¹Blue wild indigo is a forb but provides shrubby structure and may be used as a shrub.</i>			

TREE / SHRUB SPACING TABLE		
Spacing	No. per acre	Common Uses
8' x 8'	681	Shrub plantings for wildlife. Conifer plantings for timber product.
8' x 10'	544	



CONSERVATION STEWARDSHIP PROGRAM

10' x 10'	436	
10' x 12'	363	Riparian buffers. Hardwoods planted for sawtimber.
12' x 12'	302	Riparian buffers. Hardwoods planted for sawtimber. Wildlife tree plantings.
15' x 15'	194	Some hardwoods planted for sawtimber. Some wildlife tree plantings.
17' x 17'	150	Low density: high quality
20' x 20'	109	Most production of some hardwoods.

Beneficial Species List

Select Beneficial Insect and Plant Species from the following table: PLANT SPECIES TO FORMULATE MIXTURES

Mixtures should be designed to provide blooming plants attractive to predacious insects that would feed on pest insects in the cash crop. The table below provides common flowering plant materials used in integrated pest management. **Mixtures should consist of at least 1-2 plant species for each blooming period (Spring, Summer, Fall) within the cropping season of the target crop. Plantings should consist of a diversity of plants with at least 3-6 species in the mix.**

Plant Species (A or P)*	Peak Bloom Period	Seeding Rate** Lb/Ac	Seeding Date***	Common Beneficial Insects	Trap Crop (Y or blank) (crop:pest insect controlled)
Alfalfa (P)	May	7 – 20	CS fall or spring	Damsel bug, minute pirate bug	Y
Buckwheat (A)	21 day after planting	35	WS	Braconid wasp, hover flies, tachinid flies, lacewings, ladybug, chalcid wasp, minute pirate bug	Y (Truck Crops; aphids)
Butterfly weed (P)	July	2	WS	Ladybug	
Clover, white (P)	June	1-2	CS fall or spring	Aphid parasites, braconid wasp, ground beetle, chalcid wasp	
Clover, crimson (A)	May	15 - 20	CS fall or spring	Ladybug, minute pirate bug	



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Clover, berseem (A)	June	15 - 20	CS spring	Big eyed bug	
Coreopsis, lanceleaf (P)	July	2	WS	Lacewing, ladybug, hover fly, white fly parasite wasp	
Corn (A)	July	13 - 100	WS	Minute pirate bug, lacewing	Y
Cownea (A)	July	75	WS	Braconid wasp, chalcid wasp	Y
Goldenrod, Rigid (P)	September	0.5	WS	Damsel bug, lacewing, ladybug, minute pirate bug, spined soldier bug, tachinid fly, white fly parasite wasp	
Goldenrod, showy (P)	September	0.25	WS	Damsel bug, lacewing, ladybug, minute pirate bug, spined soldier bug, tachinid	
Rye, cereal (A)	May	30 - 100	CS fall or spring	Ladybug	Y
Sorghum, grain (A)		10 - 30	WS		Y
Sunflower, Ashy (P)	August	2	WS	Braconid wasp, damsel bug, lacewing, ladybug, minute pirate bug, spined soldier bug, hover fly, white fly wasp	
Sunflower, Maximilian (P)	August	1	WS	Braconid wasp, damsel bug, lacewing, ladybug, minute pirate bug, spined soldier bug, hover fly, white fly wasp	
Sunflower, native (P)	August	10	WS	Braconid wasp, damsel bug, lacewing, ladybug, minute pirate bug, spined soldier bug, hover fly, white fly wasp	
Vetch, hairy (A)	May	7 - 20	CS fall or spring	Braconid wasp, minute pirate bug, chalcid wasp	
Yarrow, common (P)	July	2	WS	Braconid wasp, chalcid wasp, damsel bug, ladybug, minute pirate bug, spined soldier bug, hover fly, white fly wasp	



TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION
STEWARDSHIP
PROGRAM

E328101I

Improved resource conserving crop rotation to reduce water erosion

Conservation Practice 328: Conservation Crop Rotation

Additional Criteria for TN

- In addition to the criteria specified in the National job sheet E328101I the following additional criteria apply in TN for the State Specific List of Resource Conserving Crops:
- Perennial Grasses:
 - Cool Season Perennial Grasses: Kentucky Bluegrass, Orchard grass, Tall Fescue, Timothy
 - Warm Season Perennial Grasses: Bermudagrass, Big Bluestem, Dallisgrass, Eastern Gamagrass, Indiangrass, Little Bluestem, Switchgrass
- Perennial Legumes: Alfalfa, Red Clover
- Grass-Legume mixture:
 - Cool Season Perennial Grasses: Kentucky Bluegrass, Orchard grass, Tall Fescue, Timothy
 - Warm Season Perennial Grasses: Bermudagrass, Big Bluestem, Dallisgrass, Eastern Gamagrass, Indiangrass, Little Bluestem, Switchgrass
 - Legumes: Red Clover, White Clover, Sweetclover, Berseem Clover, Crimson Clover



TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION
STEWARDSHIP
PROGRAM

E328101R

Resource conserving crop rotation to reduce water erosion

Conservation Practice 328: Conservation Crop Rotation

Additional Criteria for TN

- In addition to the criteria specified in the National job sheet E328101R the following additional criteria apply in TN for the State Specific List of Resource Conserving Crops:
- Perennial Grasses:
 - Cool Season Perennial Grasses: Kentucky Bluegrass, Orchard grass, Tall Fescue, Timothy
 - Warm Season Perennial Grasses: Bermudagrass, Big Bluestem, Dallisgrass, Eastern Gamagrass, Indiangrass, Little Bluestem, Switchgrass
- Perennial Legumes: Alfalfa, Red Clover
- Legume-Grass mixture:
 - Cool Season Perennial Grasses: Kentucky Bluegrass, Orchard grass, Tall Fescue, Timothy
 - Warm Season Perennial Grasses: Bermudagrass, Big Bluestem, Dallisgrass, Eastern Gamagrass, Indiangrass, Little Bluestem, Switchgrass
 - Legumes: Red Clover, White Clover, Sweetclover, Berseem Clover, Crimson Clover
- Grass-Forbs or Legume-Grass-Forbs mixture:
 - Cool Season Perennial Grasses: Kentucky Bluegrass, Orchard grass, Tall Fescue, Timothy
 - Warm Season Perennial Grasses: Bermudagrass, Big Bluestem, Dallisgrass, Eastern Gamagrass, Indiangrass, Little Bluestem, Switchgrass
 - Legumes: Red Clover, White Clover, Sweetclover, Berseem Clover, Crimson Clover

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- Forbs: Brassicas (example: radish, turnip, rape, etc.), Chicory
- Small grain grown in combination with a legume, forbs or any grass-forbs mixture that is used as a green manure:
 - Small Grains: Barley, Cereal Rye, Millets, Oats, Wheat
 - Legumes for green manure: Austrian Winter Peas, Berseem Clover, Cowpeas, Crimson Clover, Hairy Vetch, Red Clover, Sweetclovers, White Clover
 - Forbs for green manure: Brassicas (example: radish, turnip, rape, etc.), Chicory



TENNESSEE SUPPLEMENT TO
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CONSERVATION
STEWARDSHIP
PROGRAM

E328106I

Improve resource conserving crop rotation for soil organic matter improvement

Conservation Practice 328: Conservation Crop Rotation

Additional Criteria for TN

- In addition to the criteria specified in the National job sheet E328106I the following additional criteria apply in TN for the State Specific List of Resource Conserving Crops:
- Perennial Grasses:
 - Cool Season Perennial Grasses: Kentucky Bluegrass, Orchard grass, Tall Fescue, Timothy
 - Warm Season Perennial Grasses: Bermudagrass, Big Bluestem, Dallisgrass, Eastern Gamagrass, Indiangrass, Little Bluestem, Switchgrass
- Perennial Legumes: Alfalfa, Red Clover
- Grass-Legume mixture:
 - Cool Season Perennial Grasses: Kentucky Bluegrass, Orchardgrass, Tall Fescue, Timothy
 - Warm Season Perennial Grasses: Bermudagrass, Big Bluestem, Dallisgrass, Eastern Gamagrass, Indiangrass, Little Bluestem, Switchgrass
 - Legumes: Red Clover, White Clover, Sweet clover, Berseem Clover, Crimson Clover

E328106I- Improved resource conserving crop rotation for soil organic matter improvement	December 2017	Page 1
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CONSERVATION
STEWARDSHIP
PROGRAM

E328106R

Resource conserving crop rotation for soil organic matter improvement

Conservation Practice 328: Conservation Crop Rotation

Additional Criteria for TN

- In addition to the criteria specified in the National job sheet E328106R the following additional criteria apply in TN for the State Specific List of Resource Conserving Crops:
- Perennial Grasses:
 - Cool Season Perennial Grasses: Kentucky Bluegrass, Orchard grass, Tall Fescue, Timothy
 - Warm Season Perennial Grasses: Bermudagrass, Big Bluestem, Dallisgrass, Eastern Gamagrass, Indiangrass, Little Bluestem, Switchgrass
- Perennial Legumes: Alfalfa, Red Clover
- Legume-Grass mixture:
 - Cool Season Perennial Grasses: Kentucky Bluegrass, Orchard grass, Tall Fescue, Timothy
 - Warm Season Perennial Grasses: Bermudagrass, Big Bluestem, Dallisgrass, Eastern Gamagrass, Indiangrass, Little Bluestem, Switchgrass
 - Legumes: Red Clover, White Clover, Sweetclover, Berseem Clover, Crimson Clover
- Grass-Forbs or Legume-Grass-Forbs mixture:
 - Cool Season Perennial Grasses: Kentucky Bluegrass, Orchard grass, Tall Fescue, Timothy

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CONSERVATION STEWARDSHIP PROGRAM

- Warm Season Perennial Grasses: Bermudagrass, Big Bluestem, Dallisgrass, Eastern Gamagrass, Indiangrass, Little Bluestem, Switchgrass
- Legumes: Red Clover, White Clover, Sweetclover, Berseem Clover, Crimson Clover
- Forbs: Brassicas (example: radish, turnip, rape, etc.), Chicory

- Small grain grown in combination with a legume, forbs or any grass-forbs mixture that is used as a green manure:
 - Small Grains: Barley, Cereal Rye, Millets, Oats, Wheat
 - Legumes for green manure: Austrian Winter Peas, Berseem Clover, Cowpeas, Crimson Clover, Hairy Vetch, Red Clover, Sweetclovers, White Clover
 - Forbs for green manure: Brassicas (example: radish, turnip, rape, etc.), Chicory



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CONSERVATION STEWARDSHIP PROGRAM

E328106Z1

Soil health crop rotation

Conservation Practice 328: Conservation Crop Rotation

Additional Criteria for TN

- In addition to the criteria specified in the National job sheet E328106Z1 the following additional criteria apply in TN for the State High Residue Crops:
 - Grain Crops: Corn, Sorghum (Milo), Wheat
 - **NOTE:** Silages, Legumes, and Brassicas are low residue crops
 - Cover Crops:
 - Small Grains-Cool Season: Barley, Forage Oats (in mixtures only), Cereal Rye, Wheat
 - Small Grains-Warm Season: Pearl Millet, Sorghums, Sudangrass
- TN guidance for maximizing living root systems (90% of available growing days):
 - A crop or cover crop should be actively growing from mid-February (green up) to mid-December (dormancy).



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E328106Z3

Conservation crop rotation on recently converted CRP
grass/legume cover for soil organic matter improvement

Conservation Practice 328: Conservation Crop Rotation

Additional Criteria for TN

- In addition to the criteria specified in the National job sheet E328106Z3 the following additional criteria apply in TN for the State High Residue Crops:
 - Grain Crops: Corn, Sorghum (Milo), Wheat
 - **NOTE:** Silages, Legumes, and Brassicas are low residue crops
 - Cover Crops:
 - Small Grains-Cool Season: Barley, Forage Oats (in mixtures only), Cereal Rye, Wheat
 - Small Grains-Warm Season: Pearl Millet, Sorghums, Sudangrass
- TN guidance for maximizing living root systems (90% of available growing days):
 - A crop or cover crop should be actively growing from mid-February (green up) to mid-December (dormancy).

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**CONSERVATION
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PROGRAM**

E328107I

Improved resource conserving crop rotation to improve soil compaction

Conservation Practice 328: Conservation Crop Rotation

Additional Criteria for TN

- In addition to the criteria specified in the National job sheet E328107I the following additional criteria apply in TN for the State Specific List of Resource Conserving Crops:
- Perennial Grasses:
 - Cool Season Perennial Grasses: Kentucky Bluegrass, Orchard grass, Tall Fescue, Timothy
 - Warm Season Perennial Grasses: Bermudagrass, Big Bluestem, Dallisgrass, Eastern Gamagrass, Indiangrass, Little Bluestem, Switchgrass
- Perennial Legumes: Alfalfa, Red Clover
- Grass-Legume mixture:
 - Cool Season Perennial Grasses: Kentucky Bluegrass, Orchard grass, Tall Fescue, Timothy
 - Warm Season Perennial Grasses: Bermudagrass, Big Bluestem, Dallisgrass, Eastern Gamagrass, Indiangrass, Little Bluestem, Switchgrass
 - Legumes: Red Clover, White Clover, Sweetclover, Berseem Clover, Crimson Clover



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CONSERVATION
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PROGRAM

E328107R

Resource conserving crop rotation to improve soil compaction

Conservation Practice 328: Conservation Crop Rotation

Additional Criteria for TN

- In addition to the criteria specified in the National job sheet E328107R the following additional criteria apply in TN for the State Specific List of Resource Conserving Crops:
- Perennial Grasses:
 - Cool Season Perennial Grasses: Kentucky Bluegrass, Orchard grass, Tall Fescue, Timothy
 - Warm Season Perennial Grasses: Bermudagrass, Big Bluestem, Dallisgrass, Eastern Gamagrass, Indiangrass, Little Bluestem, Switchgrass
- Perennial Legumes: Alfalfa, Red Clover
- Legume-Grass mixture:
 - Cool Season Perennial Grasses: Kentucky Bluegrass, Orchard grass, Tall Fescue, Timothy
 - Warm Season Perennial Grasses: Bermudagrass, Big Bluestem, Dallisgrass, Eastern Gamagrass, Indiangrass, Little Bluestem, Switchgrass
 - Legumes: Red Clover, White Clover, Sweetclover, Berseem Clover, Crimson Clover
- Grass-Forbs or Legume-Grass-Forbs mixture:
 - Cool Season Perennial Grasses: Kentucky Bluegrass, Orchard grass, Tall Fescue, Timothy
 - Warm Season Perennial Grasses: Bermudagrass, Big Bluestem, Dallisgrass, Eastern Gamagrass, Indiangrass, Little Bluestem, Switchgrass

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CONSERVATION STEWARDSHIP PROGRAM

- Legumes: Red Clover, White Clover, Sweetclover, Berseem Clover, Crimson Clover
- Forbs: Brassicas (example: radish, turnip, rape, etc.), Chicory
- Small grain grown in combination with a legume, forbs or any grass-forbs mixture that is used as a green manure:
 - Small Grains: Barley, Cereal Rye, Millets, Oats, Wheat
 - Legumes for green manure: Austrian Winter Peas, Berseem Clover, Cowpeas, Crimson Clover, Hairy Vetch, Red Clover, Sweetclovers, White Clover
 - Forbs for green manure: Brassicas (example: radish, turnip, rape, etc.), Chicory



**TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY**

**CONSERVATION
STEWARDSHIP
PROGRAM**

E328134I

Improved resource conserving crop rotation to relieve plant pest pressure

Conservation Practice 328: Conservation Crop Rotation

Additional Criteria for TN

- In addition to the criteria specified in the National job sheet E328134I the following additional criteria apply in TN for the State Specific List of Resource Conserving Crops:
- Perennial Grasses:
 - Cool Season Perennial Grasses: Kentucky Bluegrass, Orchard grass, Tall Fescue, Timothy
 - Warm Season Perennial Grasses: Bermudagrass, Big Bluestem, Dallisgrass, Eastern Gamagrass, Indiangrass, Little Bluestem, Switchgrass
- Perennial Legumes: Alfalfa, Red Clover
- Grass-Legume mixture:
 - Cool Season Perennial Grasses: Kentucky Bluegrass, Orchard grass, Tall Fescue, Timothy
 - Warm Season Perennial Grasses: Bermudagrass, Big Bluestem, Dallisgrass, Eastern Gamagrass, Indiangrass, Little Bluestem, Switchgrass
 - Legumes: Red Clover, White Clover, Sweetclover, Berseem Clover, Crimson Clover



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E328134R

Resource conserving crop rotation to relieve plant pest pressure

Conservation Practice 328: Conservation Crop Rotation

Additional Criteria for TN

- In addition to the criteria specified in the National job sheet E328134R the following additional criteria apply in TN for the State Specific List of Resource Conserving Crops:
- Perennial Grasses:
 - Cool Season Perennial Grasses: Kentucky Bluegrass, Orchard grass, Tall Fescue, Timothy
 - Warm Season Perennial Grasses: Bermudagrass, Big Bluestem, Dallisgrass, Eastern Gamagrass, Indiangrass, Little Bluestem, Switchgrass
- Perennial Legumes: Alfalfa, Red Clover
- Legume-Grass mixture:
 - Cool Season Perennial Grasses: Kentucky Bluegrass, Orchard grass, Tall Fescue, Timothy
 - Warm Season Perennial Grasses: Bermudagrass, Big Bluestem, Dallisgrass, Eastern Gamagrass, Indiangrass, Little Bluestem, Switchgrass
 - Legumes: Red Clover, White Clover, Sweetclover, Berseem Clover, Crimson Clover
- Grass-Forbs or Legume-Grass-Forbs mixture:
 - Cool Season Perennial Grasses: Kentucky Bluegrass, Orchard grass, Tall Fescue, Timothy
 - Warm Season Perennial Grasses: Bermudagrass, Big Bluestem, Dallisgrass, Eastern Gamagrass, Indiangrass, Little Bluestem, Switchgrass

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- Legumes: Red Clover, White Clover, Sweetclover, Berseem Clover, Crimson Clover
- Forbs: Brassicas (example: radish, turnip, rape, etc.), Chicory
- Small grain grown in combination with a legume, forbs or any grass-forbs mixture that is used as a green manure:
 - Small Grains: Barley, Cereal Rye, Millets, Oats, Wheat
 - Legumes for green manure: Austrian Winter Peas, Berseem Clover, Cowpeas, Crimson Clover, Hairy Vetch, Red Clover, Sweetclovers, White Clover
 - Forbs for green manure: Brassicas (example: radish, turnip, rape, etc.), Chicory



TENNESSEE SUPPLEMENT TO
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CONSERVATION
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PROGRAM

E338136Z

Short-interval burns to promote a healthy herbaceous plant community for wildlife food

Conservation Practice 338: Prescribed Burning

Additional Criteria for TN

- In addition to the criteria specified in the National job sheet E338136Z the following additional criteria apply in TN:
 - This activity will be completed according TN NRCS approved prescribed burn plan or equivalent (TWRA, TDF, Certified Burn Manager Prescribed Burn Plan, etc.) TN Prescribed Burning and Wildfire laws must be provided to the client. The laws are located at:
http://www.tnpfc.org/uploads/1/9/4/1/19419829/prescribed_burning_rules.pdf <http://www.burnsafetn.org/pdfs/firelaws.pdf>
 - A short fire return interval in Tennessee is defined as two years.

Additional Documentation Requirements for TN

- In addition to the documentation requirements specified in the National job sheet E338136Z the following additional documentation requirements apply in TN:
 - TN NRCS approved prescribed burn plan or equivalent (TWRA, TDF, Certified Burn Manager Prescribed Burn Plan, etc.)

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**TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY**

**CONSERVATION
STEWARDSHIP
PROGRAM**

E338137Z1

Sequential patch burning

Conservation Practice 338: Prescribed Burning

Additional Criteria for TN

- In addition to the criteria specified in the National job sheet E338137Z1 the following additional criteria apply in TN:
 - This activity will be completed according TN NRCS approved prescribed burn plan or equivalent (TWRA, TDF, Certified Burn Manager Prescribed Burn Plan, etc.) TN Prescribed Burning and Wildfire laws must be provided to the client. The laws are located at:
http://www.tnpsc.org/uploads/1/9/4/1/19419829/prescribed_burning_rules.pdf <http://www.burnsafetn.org/pdfs/firelaws.pdf>

Additional Documentation Requirements for TN

- In addition to the documentation requirements specified in the National job sheet E338136Z the following additional documentation requirements apply in TN:
 - TN NRCS approved prescribed burn plan or equivalent (TWRA, TDF, Certified Burn Manager Prescribed Burn Plan, etc.)



**TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY**

**CONSERVATION
STEWARDSHIP
PROGRAM**

E338137Z2

Short-interval burn

Conservation Practice 338: Prescribed Burning

Additional Criteria for TN

In addition to the criteria specified in the National job sheet E338137Z the following additional criteria apply in TN:

- This activity will be completed according TN NRCS approved prescribed burn plan or equivalent (TWRA, TDF, Certified Burn Manager Prescribed Burn Plan, etc.) TN Prescribed Burning and Wildfire laws must be provided to the client. The laws are located at:
http://www.tnpsc.org/uploads/1/9/4/1/19419829/prescribed_burning_rules.pdf <http://www.burnsafetn.org/pdfs/firelaws.pdf>

Additional Documentation Requirements for TN

In addition to the documentation requirements specified in the National job sheet E338136Z the following additional documentation requirements apply in TN:

- TN NRCS approved prescribed burn plan or equivalent (TWRA, TDF, Certified Burn Manager Prescribed Burn Plan, etc.)



**TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY**

**CONSERVATION
STEWARDSHIP
PROGRAM**

E338140Z

Short-interval burns to promote a healthy herbaceous plant community

Conservation Practice 338: Prescribed Burning

Additional Criteria for TN

- In addition to the criteria specified in the National job sheet E338140Z the following additional criteria apply in TN:
 - This activity will be completed according TN NRCS approved prescribed burn plan or equivalent (TWRA, TDF, Certified Burn Manager Prescribed Burn Plan, etc.) TN Prescribed Burning and Wildfire laws must be provided to the client. The laws are located at:
http://www.tnpfc.org/uploads/1/9/4/1/19419829/prescribed_burning_rules.pdf <http://www.burnsafetn.org/pdfs/firelaws.pdf>

Additional Documentation Requirements for TN

- In addition to the documentation requirements specified in the National job sheet E338136Z the following additional documentation requirements apply in TN:
 - TN NRCS approved prescribed burn plan or equivalent (TWRA, TDF, Certified Burn Manager Prescribed Burn Plan, etc.)

E338140Z - Short-interval burns to promote a healthy herbaceous plant community	December 2017	Page 1
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**TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY**

**CONSERVATION
STEWARDSHIP
PROGRAM**

E340101Z

Cover crop to reduce water erosion

Conservation Practice 340: Cover Crop

Additional Criteria for TN

- In addition to the criteria specified in the National Job Sheet E340101Z the following additional criteria apply in TN for the State Specific List of cover crops:
 - Ideal seeding depth is 8 X width of seed; in multiple species mixes, seeding depth should be 0.5" to 0.75".
 - Refer to UT Weed Control Manual for herbicide use relative to crop rotation and restricted use:
<https://extension.tennessee.edu/publications/Documents/PB1580.pdf>
- Example Cover Crop Mixes are located on the following pages:



CONSERVATION STEWARDSHIP PROGRAM

Crop Mixtures	Seeding Rate (lb/ac)		Planting Date	C:N Ratio at Vegetative Stage
	Drilled	Broadcast		
Simple Cover Crop Mix 1:				
Cereal Rye	20	26	Aug. 15 to Oct. 15	30
Wheat	20	26		
Crimson Clover	5	7		
Austrian Winter Pea	14	18		
Radish	1	1		
Simple Cover Crop Mix 2:				
Wheat	25	32	Aug. 15 to Oct. 15	25
Crimson Clover	5	7		
Austrian Winter Peas	14	18		
Hairy Vetch	5	7		
Radish	1	1		



CONSERVATION STEWARDSHIP PROGRAM

Crop Mixtures	Seeding Rate (lb/ac)		Planting Date	C:N Ratio at Vegetative Stage
	Drilled	Broadcast		
<u>Multi Species Cover Crop Mix (Cool Season planted after corn):</u>				
Cereal Rye	20	26	Aug. 15 to Oct. 15	31
Oats	20	26		
Austrian Winter Pea	11	14		
Crimson Clover	4	5		
Radish	1	1		
Turnip	0.5	0.5		
<u>Multi Species Cover Crop Mix (Cool Season planted after corn):</u>				
Cereal Rye	20	26	Aug. 15 to Oct. 15	32
Wheat	15	20		
Crimson Clover	4	5		
Radish	1.5	1.5		
Hairy Vetch	4	5		



CONSERVATION STEWARDSHIP PROGRAM

Crop Mixtures	Seeding Rate (lb/ac)		Planting Date	C:N Ratio at Vegetative Stage
	Drilled	Broadcast		
<u>Multi Species Cover Crop Mix (Cool Season planted after corn):</u>				
Cereal Rye	28	36	Aug. 15 to Oct. 15	35
Wheat	28	36		
Crimson Clover	4	5		
Radish	1	1		
Turnip	0.5	0.5		
<u>Multi Species Cover Crop Mix (Cool Season planted after double crop soybeans or cotton and up to 20% of land in full season soybeans):</u>				
Cereal Rye	20	-	Drilled Only, up to Nov. 1	33
Triticale	20	-		
Turnip	0.5	-		
Crimson Clover or Hairy Vetch	5	-		
Austrian Winter Pea	13	-		



CONSERVATION STEWARDSHIP PROGRAM

Crop Mixtures	Seeding Rate (lb/ac)		Planting Date	C:N Ratio at Vegetative Stage
	Drilled	Broadcast		
Multi Species Cover Crop Mix (Warm Season) Double crop soybean producers could plant a warm season cover crop to achieve 3 consecutive years of cover crops. This option is available to all producers.				
Buckwheat (optional)	1	1	April 20 to July 1	21
Sunflowers (optional)	1	1		
Sudangrass	10	13		
Millet	4	5		
Cowpeas	11	14		
Soybeans	11	14		
Turnips	1.5	1.5		
Sun hemp	5	7		



- Additional Seeding Options (Full Rates Listed)

CONSERVATION STEWARDSHIP PROGRAM

Plant Species	Peak Bloom	Seeding Rate (lb/ac)		Seeding Date	Note
		Drilled	Broadcast		
Buckwheat (WSA)	21 days after planting	35	42	June 1 to Aug 15	Quick warm season cover, can be added as a minor component of fall cool season, 1.0 lb/ac is enough in mixes
Clover, crimson (CSA) (ss)	May	17	21	Aug. 15 to Oct. 15 Feb. 20 to April 1	Tap root, late spring growth
Clover, berseem (CSA) (ss)	June	11	14	Feb. 20 to April 1	Tap root
Clover, red (CSB) (ss)	July	8	10	Aug. 15 to Oct. 15 Feb. 20 to April 1	Tap root
Cowpea (WSA) (ss)	July	56	70	May 20 to June 20	Tap root, high N producer
Millet, Browntop (WSA)	August	17	21	May 1 to July 1	Quick cover
Oats (CSA)	May	100	140	Sept. 1 to Oct. 1 Feb. 20 to April 1	May freeze out



CONSERVATION STEWARDSHIP PROGRAM

Plant Species	Peak Bloom	Seeding Rate (lb/ac)		Seeding Date	Note
		Drilled	Broadcast		
Radish, forage (CSA) (ss)	-	8	10	Aug. 15 to Oct. 15 (best sown before Sept. 15) Feb. 20 to April 1	May freeze out at 25°F, tap root, 1.5 lbs/ac of brassicas is enough in mixes
Rye, cereal (CSA)	May	90	112	Aug. 15 to Nov. 20	Allelopathic to palmer amaranth, plant small seeded crops 2 weeks after rye termination
Sudangrass (WSA) (ss)	July	28	35	May 1 to June 20	Strong roots
Sunflower (WSA)	July – Aug	9	11	April 15 to May 15	Fat establishment, 1.0 lbs/ac is enough in mixes
Sun hemp, Tropical (WSA) (ss)	-	20	25	May 1 to July 20	Need 60 days minimum growth, high biomass and N producer
Sweet clover (CSB) (ss)	July	13	17	Aug. 15 to Oct. 15 Feb. 20 to April 1	Allelopathic to thistle and green foxtail, 1.0 lbs/ac is enough in mixes



CONSERVATION STEWARDSHIP PROGRAM

Plant Species	Peak Bloom	Seeding Rate (lb/ac)		Seeding Date	Note
		Drilled	Broadcast		
Turnips (CSA) (ss)	-	3	4	Aug. 15 to Oct. 15 Feb. 20 to April 1	Very small seed (use electric seeder or carrier like pelletized lime or crimson clover), no more than 0.5 lbs/ac of brassicas
Vetch, hairy (CSA) (ss)	May	22	28	Aug. 15 to Oct. 15 Feb. 20 to April 1	Can be invasive, late spring growth, tolerant to low fertility, high N producer
Wheat (CSA)	June	90	112	Sept. 15 to Nov. 10 Feb. 20 to April 1	Low cost quick cover, reduced vigor following sorghums
Winter Peas, Austrian (CSA) (ss)	May	40	50	Aug. 15 to Oct. 15 Feb. 20 to April 1	Slow to establish

Note: CSA = Cool Season Annual, CSP = Cool Season Perennial, WSA = Warm Season Annual, CSB = Cool Season Biennial, ss = subsoiler crop.



TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION
STEWARDSHIP
PROGRAM

E340106Z1

Intensive cover cropping to increase soil health and soil organic matter content

Conservation Practice 340: Cover Crop

Additional Criteria for TN

- Cover crops will be planted no-till.
- Ideal seeding depth is 8 X width of seed; in multiple species mixes, seeding depth should be 0.5" to 0.75".
- Refer to UT Weed Control Manual for herbicide use relative to crop rotation and restricted use: <https://extension.tennessee.edu/publications/Documents/PB1580.pdf>
- Example Cover Crop Mixes:

Crop Mixtures	Seeding Rate (lb/ac)		Planting Date	C:N Ratio at Vegetative Stage
	Drilled	Broadcast		
Simple Cover Crop Mix 1:				
Cereal Rye	20	26	Aug. 15 to Oct. 15	30
Wheat	20	26		
Crimson Clover	5	7		
Austrian Winter Pea	14	18		
Radish	1	1		



CONSERVATION STEWARDSHIP PROGRAM

Crop Mixtures	Seeding Rate (lb/ac)		Planting Date	C:N Ratio at Vegetative Stage
	Drilled	Broadcast		
Simple Cover Crop Mix 2:				
Wheat	25	32	Aug. 15 to Oct. 15	25
Crimson Clover	5	7		
Austrian Winter Peas	14	18		
Hairy Vetch	5	7		
Radish	1	1		
Multi Species Cover Crop Mix (Cool Season planted after corn):				
Cereal Rye	20	26	Aug. 15 to Oct. 15	31
Oats	20	26		
Austrian Winter Pea	11	14		
Crimson Clover	4	5		
Radish	1	1		
Turnip	0.5	0.5		



CONSERVATION STEWARDSHIP PROGRAM

Crop Mixtures	Seeding Rate (lb/ac)		Planting Date	C:N Ratio at Vegetative Stage
	Drilled	Broadcast		
Multi Species Cover Crop Mix (Cool Season planted after corn):				
Cereal Rye	20	26	Aug. 15 to Oct. 15	32
Wheat	15	20		
Crimson Clover	4	5		
Radish	1.5	1.5		
Hairy Vetch	4	5		
Multi Species Cover Crop Mix (Cool Season planted after corn):				
Cereal Rye	28	36	Aug. 15 to Oct. 15	35
Wheat	28	36		
Crimson Clover	4	5		
Radish	1	1		
Turnip	0.5	0.5		



CONSERVATION STEWARDSHIP PROGRAM

Crop Mixtures	Seeding Rate (lb/ac)		Planting Date	C:N Ratio at Vegetative Stage
	Drilled	Broadcast		
<u>Multi Species Cover Crop Mix (Cool Season planted after double crop soybeans or cotton and up to 20% of land in full season soybeans):</u>				
Cereal Rye	20	-	Drilled Only, up to Nov. 1	33
Triticale	20	-		
Turnip	0.5	-		
Crimson Clover or Hairy Vetch	5	-		
Austrian Winter Pea	13	-		



CONSERVATION STEWARDSHIP PROGRAM

- Additional Seeding Options (Full Rates Listed)

Plant Species	Peak Bloom	Seeding Rate (lb/ac)		Seeding Date	Note
		Drilled	Broadcast		
Buckwheat (WSA)	21 days after planting	35	42	June 1 to Aug 15	Quick warm season cover, can be added as a minor component of fall cool season, 1.0 lb/ac is enough in mixes
Clover, crimson (CSA) (ss)	May	17	21	Aug. 15 to Oct. 15 Feb. 20 to April 1	Tap root, late spring growth
Clover, berseem (CSA) (ss)	June	11	14	Feb. 20 to April 1	Tap root
Clover, red (CSB) (ss)	July	8	10	Aug. 15 to Oct. 15 Feb. 20 to April 1	Tap root
Cowpea (WSA) (ss)	July	56	70	May 20 to June 20	Tap root, high N producer
Millet, Browntop (WSA)	August	17	21	May 1 to July 1	Quick cover
Oats (CSA)	May	100	140	Sept. 1 to Oct. 1 Feb. 20 to April 1	May freeze out



CONSERVATION STEWARDSHIP PROGRAM

Plant Species	Peak Bloom	Seeding Rate (lb/ac)		Seeding Date	Note
		Drilled	Broadcast		
Radish, forage (CSA) (ss)	-	8	10	Aug. 15 to Oct. 15 (best sown before Sept. 15) Feb. 20 to April 1	May freeze out at 25°F, tap root, 1.5 lbs/ac of brassicas is enough in mixes
Rye, cereal (CSA)	May	90	112	Aug. 15 to Nov. 20	Allelopathic to palmer amaranth, plant small seeded crops 2 weeks after rye termination
Sudangrass (WSA) (ss)	July	28	35	May 1 to June 20	Strong roots
Sunflower (WSA)	July – Aug	9	11	April 15 to May 15	Fat establishment, 1.0 lbs/ac is enough in mixes
Sun hemp, Tropical (WSA) (ss)	-	20	25	May 1 to July 20	Need 60 days minimum growth, high biomass and N producer
Sweet clover (CSB) (ss)	July	13	17	Aug. 15 to Oct. 15 Feb. 20 to April 1	Allelopathic to thistle and green



CONSERVATION STEWARDSHIP PROGRAM

					foxtail, 1.0 lbs/ac is enough in mixes
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Plant Species	Peak Bloom	Seeding Rate (lb/ac)		Seeding Date	Note
		Drilled	Broadcast		
Turnips (CSA) (ss)	-	3	4	Aug. 15 to Oct. 15 Feb. 20 to April 1	Very small seed (use electric seeder or carrier like pelletized lime or crimson clover), no more than 0.5 lbs/ac of brassicas
Vetch, hairy (CSA) (ss)	May	22	28	Aug. 15 to Oct. 15 Feb. 20 to April 1	Can be invasive, late spring growth, tolerant to low fertility, high N producer
Wheat (CSA)	June	90	112	Sept. 15 to Nov. 10 Feb. 20 to April 1	Low cost quick cover, reduced vigor following sorghums
Winter Peas, Austrian (CSA) (ss)	May	40	50	Aug. 15 to Oct. 15 Feb. 20 to April 1	Slow to establish

Note: CSA = Cool Season Annual, CSP = Cool Season Perennial, WSA = Warm Season Annual, CSB = Cool Season Biennial, ss = subsoiler crop.



**TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY**

**CONSERVATION
STEWARDSHIP
PROGRAM**

E340106Z2

Use of multi-species cover crop to improve soil health and increase soil organic matter

Conservation Practice 340: Cover Crop

Additional Criteria for TN

- In addition to the criteria specified in the National Job Sheet E340106Z2 the following additional criteria apply in TN for the State Specific List of cover crops:
 - Cover crops will be planted no-till.
 - Ideal seeding depth is 8 X width of seed; in multiple species mixes, seeding depth should be 0.5" to 0.75".
 - If grazing cover crops, increase small grain seeding rate up to 100 lbs/ac.
 - Refer to UT Weed Control Manual for herbicide use relative to crop rotation and restricted use:
<https://extension.tennessee.edu/publications/Documents/PB1580.pdf>
- Example Cover Crop Mixes are located on the following pages:

E340106Z2 - Use of multi-species cover crop to improve soil health and increase soil organic matter	December 2017 Page 1
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CONSERVATION STEWARDSHIP PROGRAM

Crop Mixtures	Seeding Rate (lb/ac) (If grazing is planned, increase seeding rate up to 100 lbs/ac)		Planting Date	C:N Ratio at Vegetative Stage
	Drilled	Broadcast		
Simple Cover Crop Mix 1:				
Cereal Rye	20	26	Aug. 15 to Oct. 15	30
Wheat	20	26		
Crimson Clover	5	7		
Austrian Winter Pea	14	18		
Radish	1	1		
Simple Cover Crop Mix 2:				
Wheat	25	32	Aug. 15 to Oct. 15	25
Crimson Clover	5	7		
Austrian Winter Peas	14	18		
Hairy Vetch	5	7		
Radish	1	1		



CONSERVATION STEWARDSHIP PROGRAM

Crop Mixtures	Seeding Rate (lb/ac) (If grazing is planned, increase seeding rate up to 100 lbs/ac)		Planting Date	C:N Ratio at Vegetative Stage
	Drilled	Broadcast		
Multi Species Cover Crop Mix (Cool Season planted after corn):				
Cereal Rye	20	26	Aug. 15 to Oct. 15	31
Oats	20	26		
Austrian Winter Pea	11	14		
Crimson Clover	4	5		
Radish	1	1		
Turnip	0.5	0.5		
Multi Species Cover Crop Mix (Cool Season planted after corn):				
Cereal Rye	20	26	Aug. 15 to Oct. 15	32
Wheat	15	20		
Crimson Clover	4	5		
Radish	1.5	1.5		
Hairy Vetch	4	5		



CONSERVATION STEWARDSHIP PROGRAM

Crop Mixtures	Seeding Rate (lb/ac) (If grazing is planned, increase seeding rate up to 100 lbs/ac)		Planting Date	C:N Ratio at Vegetative Stage
	Drilled	Broadcast		
Multi Species Cover Crop Mix (Cool Season planted after corn):				
Cereal Rye	28	36	Aug. 15 to Oct. 15	35
Wheat	28	36		
Crimson Clover	4	5		
Radish	1	1		
Turnip	0.5	0.5		
Multi Species Cover Crop Mix (Cool Season planted after double crop soybeans or cotton and up to 20% of land in full season soybeans):				
Cereal Rye	20	-	Drilled Only, up to Nov. 1	33
Triticale	20	-		
Turnip	0.5	-		
Crimson Clover or Hairy Vetch	5	-		
Austrian Winter Pea	13	-		



CONSERVATION STEWARDSHIP PROGRAM

Crop Mixtures	Seeding Rate (lb/ac)		Planting Date	C:N Ratio at Vegetative Stage
	Drilled	Broadcast		
Multi Species Cover Crop Mix (Warm Season) Double crop soybean producers could plant a warm season cover crop to achieve 3 consecutive years of cover crops. This option is available le to all producers.				
Buckwheat (optional)	1	1	April 20 to July 1	21
Sunflowers (optional)	1	1		
Sudangrass	10	13		
Millet	4	5		
Cowpeas	11	14		
Soybeans	11	14		
Turnips	1.5	1.5		
Sun hemp	5	7		



CONSERVATION STEWARDSHIP PROGRAM

- Additional Seeding Options (Full Rates Listed)

Plant Species	Peak Bloom	Seeding Rate (lb/ac)		Seeding Date	Note
		Drilled	Broadcast		
Buckwheat (WSA)	21 days after planting	35	42	June 1 to Aug 15	Quick warm season cover, can be added as a minor component of fall cool season, 1.0 lb/ac is enough in mixes
Clover, crimson (CSA) (ss)	May	17	21	Aug. 15 to Oct. 15 Feb. 20 to April 1	Tap root, late spring growth
Clover, berseem (CSA) (ss)	June	11	14	Feb. 20 to April 1	Tap root
Clover, red (CSB) (ss)	July	8	10	Aug. 15 to Oct. 15 Feb. 20 to April 1	Tap root
Cowpea (WSA) (ss)	July	56	70	May 20 to June 20	Tap root, high N producer
Millet, Browntop (WSA)	August	17	21	May 1 to July 1	Quick cover
Oats (CSA)	May	100	140	Sept. 1 to Oct. 1 Feb. 20 to April 1	May freeze out



CONSERVATION STEWARDSHIP PROGRAM

Plant Species	Peak Bloom	Seeding Rate (lb/ac)		Seeding Date	Note
		Drilled	Broadcast		
Radish, forage (CSA) (ss)	-	8	10	Aug. 15 to Oct. 15 (best sown before Sept. 15) Feb. 20 to April 1	May freeze out at 25°F, tap root, 1.5 lbs/ac of brassicas is enough in mixes
Rye, cereal (CSA)	May	90	112	Aug. 15 to Nov. 20	Allelopathic to palmer amaranth, plant small seeded crops 2 weeks after rye termination
Sudangrass (WSA) (ss)	July	28	35	May 1 to June 20	Strong roots
Sunflower (WSA)	July – Aug	9	11	April 15 to May 15	Fat establishment, 1.0 lbs/ac is enough in mixes
Sun hemp, Tropical (WSA) (ss)	-	20	25	May 1 to July 20	Need 60 days minimum growth, high biomass and N producer
Sweet clover (CSB) (ss)	July	13	17	Aug. 15 to Oct. 15 Feb. 20 to April 1	Allelopathic to thistle and green



CONSERVATION STEWARDSHIP PROGRAM

					foxtail, 1.0 lbs/ac is enough in mixes
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Plant Species	Peak Bloom	Seeding Rate (lb/ac)		Seeding Date	Note
		Drilled	Broadcast		
Turnips (CSA) (ss)	-	3	4	Aug. 15 to Oct. 15 Feb. 20 to April 1	Very small seed (use electric seeder or carrier like pelletized lime or crimson clover), no more than 0.5 lbs/ac of brassicas
Vetch, hairy (CSA) (ss)	May	22	28	Aug. 15 to Oct. 15 Feb. 20 to April 1	Can be invasive, late spring growth, tolerant to low fertility, high N producer
Wheat (CSA)	June	90	112	Sept. 15 to Nov. 10 Feb. 20 to April 1	Low cost quick cover, reduced vigor following sorghums
Winter Peas, Austrian (CSA) (ss)	May	40	50	Aug. 15 to Oct. 15 Feb. 20 to April 1	Slow to establish

Note: CSA = Cool Season Annual, CSP = Cool Season Perennial, WSA = Warm Season Annual, CSB = Cool Season Biennial, ss = subsoiler crop.



**TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY**

**CONSERVATION
STEWARDSHIP
PROGRAM**

E340106Z3

**Intensive cover cropping (orchard or vineyard floor) to
increase soil health and soil organic matter content**

Conservation Practice 340: Cover Crop

Additional Criteria for TN

- In addition to the criteria specified in the National job sheet E340106Z3 the following additional criteria apply in TN for the State Specific List of cover crops:
 - Grasses: Virginia Wild Rye, Creeping Red Fescue, Annual Ryegrass, Orchard grass
 - Legumes: Red Clover, Crimson Clover
- Contact the state agronomist for mixtures and seeding rates for cover cropping on orchard and vineyard floors.

E340106Z3 - Intensive cover cropping (orchard or vineyard floor) to increase soil health and soil organic matter content	December 2017	Page 1
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**TENNESSEE SUPPLEMENT TO
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**CONSERVATION
STEWARDSHIP
PROGRAM**

E340106Z4

**Use of soil health assessment to assist with the
development of cover crop mix to improve soil health and
increase soil organic matter**

Conservation Practice 340: Cover Crop

Additional Criteria for TN

- In addition to the criteria specified in the National Job Sheet E340106Z2 the following additional criteria apply in TN for the State Specific List of cover crops:
 - Cover crops will be planted no-till.
 - **Minimum 5 species cover crop mix** will be selected.
 - Ideal seeding depth is 8 X width of seed; in multiple species mixes, seeding depth should be 0.5” to 0.75”.
 - If grazing cover crops, increase small grain seeding rate up to 100 lbs/ac.
 - Refer to UT Weed Control Manual for herbicide use relative to crop rotation and restricted use:
<https://extension.tennessee.edu/publications/Documents/PB1580.pdf>

- Example Cover Crop Mixes are located on the following pages:

E340106Z4 - Use of soil health assessment to assist with development of cover crop mix to improve soil health and increase soil organic matter	December 2017 Page 1
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CONSERVATION STEWARDSHIP PROGRAM

Crop Mixtures	Seeding Rate (lb/ac) (If grazing is planned, increase seeding rate up to 100 lbs/ac)		Planting Date	C:N Ratio at Vegetative Stage
	Drilled	Broadcast		
Simple Cover Crop Mix 1:				
Cereal Rye	20	26	Aug. 15 to Oct. 15	30
Wheat	20	26		
Crimson Clover	5	7		
Austrian Winter Pea	14	18		
Radish	1	1		
Simple Cover Crop Mix 2:				
Wheat	25	32	Aug. 15 to Oct. 15	25
Crimson Clover	5	7		
Austrian Winter Peas	14	18		
Hairy Vetch	5	7		
Radish	1	1		



CONSERVATION STEWARDSHIP PROGRAM

Crop Mixtures	Seeding Rate (lb/ac) (If grazing is planned, increase seeding rate up to 100 lbs/ac)		Planting Date	C:N Ratio at Vegetative Stage
	Drilled	Broadcast		
Multi Species Cover Crop Mix (Cool Season planted after corn):				
Cereal Rye	20	26	Aug. 15 to Oct. 15	31
Oats	20	26		
Austrian Winter Pea	11	14		
Crimson Clover	4	5		
Radish	1	1		
Turnip	0.5	0.5		
Multi Species Cover Crop Mix (Cool Season planted after corn):				
Cereal Rye	20	26	Aug. 15 to Oct. 15	32
Wheat	15	20		
Crimson Clover	4	5		
Radish	1.5	1.5		
Hairy Vetch	4	5		



CONSERVATION STEWARDSHIP PROGRAM

Crop Mixtures	Seeding Rate (lb/ac) (If grazing is planned, increase seeding rate up to 100 lbs/ac)		Planting Date	C:N Ratio at Vegetative Stage
	Drilled	Broadcast		
Multi Species Cover Crop Mix (Cool Season planted after corn):				
Cereal Rye	28	36	Aug. 15 to Oct. 15	35
Wheat	28	36		
Crimson Clover	4	5		
Radish	1	1		
Turnip	0.5	0.5		
Multi Species Cover Crop Mix (Cool Season planted after double crop soybeans or cotton and up to 20% of land in full season soybeans):				
Cereal Rye	20	-	Drilled Only, up to Nov. 1	33
Triticale	20	-		
Turnip	0.5	-		
Crimson Clover or Hairy Vetch	5	-		
Austrian Winter Pea	13	-		



CONSERVATION STEWARDSHIP PROGRAM

Crop Mixtures	Seeding Rate (lb/ac)		Planting Date	C:N Ratio at Vegetative Stage
	Drilled	Broadcast		
<p><u>Multi Species Cover Crop Mix (Warm Season)</u> Double crop soybean producers could plant a warm season cover crop to achieve 3 consecutive years of cover crops. This option is available to all producers.</p>				
Buckwheat (optional)	1	1	April 20 to July 1	21
Sunflowers (optional)	1	1		
Sudangrass	10	13		
Millet	4	5		
Cowpeas	11	14		
Soybeans	11	14		
Turnips	1.5	1.5		
Sun hemp	5	7		



CONSERVATION STEWARDSHIP PROGRAM

- Additional Seeding Options (Full Rates Listed)

Plant Species	Peak Bloom	Seeding Rate (lb/ac)		Seeding Date	Note
		Drilled	Broadcast		
Buckwheat (WSA)	21 days after planting	35	42	June 1 to Aug 15	Quick warm season cover, can be added as a minor component of fall cool season, 1.0 lb/ac is enough in mixes
Clover, crimson (CSA) (ss)	May	17	21	Aug. 15 to Oct. 15 Feb. 20 to April 1	Tap root, late spring growth
Clover, berseem (CSA) (ss)	June	11	14	Feb. 20 to April 1	Tap root
Clover, red (CSB) (ss)	July	8	10	Aug. 15 to Oct. 15 Feb. 20 to April 1	Tap root
Cowpea (WSA) (ss)	July	56	70	May 20 to June 20	Tap root, high N producer
Millet, Browntop (WSA)	August	17	21	May 1 to July 1	Quick cover



CONSERVATION STEWARDSHIP PROGRAM

Oats (CSA)	May	100	140	Sept. 1 to Oct. 1 Feb. 20 to April 1	May freeze out
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Plant Species	Peak Bloom	Seeding Rate (lb/ac)		Seeding Date	Note
		Drilled	Broadcast		
Radish, forage (CSA) (ss)	-	8	10	Aug. 15 to Oct. 15 (best sown before Sept. 15) Feb. 20 to April 1	May freeze out at 25°F, tap root, 1.5 lbs/ac of brassicas is enough in mixes
Rye, cereal (CSA)	May	90	112	Aug. 15 to Nov. 20	Allelopathic to palmer amaranth, plant small seeded crops 2 weeks after rye termination
Sudangrass (WSA) (ss)	July	28	35	May 1 to June 20	Strong roots
Sunflower (WSA)	July – Aug	9	11	April 15 to May 15	Fat establishment, 1.0 lbs/ac is enough in mixes



CONSERVATION STEWARDSHIP PROGRAM

Sun hemp, Tropical (WSA) (ss)	-	20	25	May 1 to July 20	Need 60 days minimum growth, high biomass and N producer
Sweet clover (CSB) (ss)	July	13	17	Aug. 15 to Oct. 15 Feb. 20 to April 1	Allelopathic to thistle and green foxtail, 1.0 lbs/ac is enough in mixes

Plant Species	Peak Bloom	Seeding Rate (lb/ac)		Seeding Date	Note
		Drilled	Broadcast		
Turnips (CSA) (ss)	-	3	4	Aug. 15 to Oct. 15 Feb. 20 to April 1	Very small seed (use electric seeder or carrier like pelletized lime or crimson clover), no more than 0.5 lbs/ac of brassicas
Vetch, hairy (CSA) (ss)	May	22	28	Aug. 15 to Oct. 15 Feb. 20 to April 1	Can be invasive, late spring growth, tolerant to low fertility, high N producer



CONSERVATION STEWARDSHIP PROGRAM

Wheat (CSA)	June	90	112	Sept. 15 to Nov. 10 Feb. 20 to April 1	Low cost quick cover, reduced vigor following sorghums
Winter Peas, Austrian (CSA) (ss)	May	40	50	Aug. 15 to Oct. 15 Feb. 20 to April 1	Slow to establish

Note: CSA = Cool Season Annual, CSP = Cool Season Perennial, WSA = Warm Season Annual, CSB = Cool Season Biennial, ss = subsoiler crop.



**TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY**

**CONSERVATION
STEWARDSHIP
PROGRAM**

E340107Z

Cover crop to minimize soil compaction

Conservation Practice 340: Cover Crop

Additional Criteria for TN

- In addition to the criteria specified in the National Job Sheet E340101Z the following additional criteria apply in TN for the State Specific List of cover crops:
 - Cover crops will be planted no-till.
 - Ideal seeding depth is 8 X width of seed; in multiple species mixes, seeding depth should be 0.5” to 0.75”.
 - Refer to UT Weed Control Manual for herbicide use relative to crop rotation and restricted use:
<https://extension.tennessee.edu/publications/Documents/PB1580.pdf>
- Example Cover Crop Mixes are located on the following pages:



CONSERVATION STEWARDSHIP PROGRAM

Crop Mixtures	Seeding Rate (lb/ac)		Planting Date	C:N Ratio at Vegetative Stage	Minimize Soil Compaction
	Drilled	Broadcast			
Simple Cover Crop Mix 1:					
Cereal Rye	20	26	Aug. 15 to Oct. 15	30	X
Wheat	20	26			
Crimson Clover	5	7			X
Austrian Winter Pea	14	18			
Radish	1	1			X
Simple Cover Crop Mix 2:					
Wheat	25	32	Aug. 15 to Oct. 15	25	
Crimson Clover	5	7			X
Austrian Winter Peas	14	18			
Hairy Vetch	5	7			
Radish	1	1			X



CONSERVATION STEWARDSHIP PROGRAM

Crop Mixtures	Seeding Rate (lb/ac)		Planting Date	C:N Ratio at Vegetative Stage	Minimize Soil Compaction
	Drilled	Broadcast			
Multi Species Cover Crop Mix (Cool Season planted after corn):					
Cereal Rye	20	26	Aug. 15 to Oct. 15	31	X
Oats	20	26			
Austrian Winter Pea	11	14			
Crimson Clover	4	5			X
Radish	1	1			X
Turnip	0.5	0.5			X
Multi Species Cover Crop Mix (Cool Season planted after corn):					
Cereal Rye	20	26	Aug. 15 to Oct. 15	32	X
Wheat	15	20			
Crimson Clover	4	5			X
Radish	1.5	1.5			X
Hairy Vetch	4	5			



CONSERVATION STEWARDSHIP PROGRAM

Crop Mixtures	Seeding Rate (lb/ac)		Planting Date	C:N Ratio at Vegetative Stage	Minimize Soil Compaction
	Drilled	Broadcast			
<u>Multi Species Cover Crop Mix (Cool Season planted after corn):</u>					
Cereal Rye	28	36	Aug. 15 to Oct. 15	35	X
Wheat	28	36			
Crimson Clover	4	5			X
Radish	1	1			X
Turnip	0.5	0.5			X
<u>Multi Species Cover Crop Mix (Cool Season after double crop soybeans or cotton and up to 20% of land in full season soybeans):</u>					
Cereal Rye	20	-	Aug. 15 to Oct. 15	33	X
Triticale	20	-			
Turnip	0.5	-			X
Crimson Clover	5	-			X
Austrian Winter Pea	13	-			



CONSERVATION STEWARDSHIP PROGRAM

Crop Mixtures	Seeding Rate (lb/ac)		Planting Date	C:N Ratio at Vegetative Stage	Minimize Soil Compaction
	Drilled	Broadcast			
<p>Multi Species Cover Crop Mix (Warm Season) Double crop soybean producers could plant a warm season cover crop to achieve 3 consecutive years of cover crops. This option is available to all producers.</p>					
Buckwheat (optional)	1	1	April 20 to July 1	21	
Sunflowers (optional)	1	1			X
Sudangrass	10	13			X
Millet	4	5			X
Cowpeas	11	14			X
Soybeans	11	14			X
Turnips	1.5	1.5			X
Sun hemp	5	7			



- Additional Seeding Options (Full Rates Listed)

CONSERVATION STEWARDSHIP PROGRAM

Plant Species	Peak Bloom	Seeding Rate (lb/ac)		Seeding Date	Note
		Drilled	Broadcast		
Buckwheat (WSA)	21 days after planting	35	42	June 1 to Aug 15	Quick warm season cover, can be added as a minor component of fall cool season, 1.0 lb/ac is enough in mixes
Clover, crimson (CSA) (ss)	May	17	21	Aug. 15 to Oct. 15 Feb. 20 to April 1	Tap root, late spring growth
Clover, berseem (CSA) (ss)	June	11	14	Feb. 20 to April 1	Tap root
Clover, red (CSB) (ss)	July	8	10	Aug. 15 to Oct. 15 Feb. 20 to April 1	Tap root
Cowpea (WSA) (ss)	July	56	70	May 20 to June 20	Tap root, high N producer
Millet, Browntop (WSA)	August	17	21	May 1 to July 1	Quick cover
Oats (CSA)	May	100	140	Sept. 1 to Oct. 1 Feb. 20 to April 1	May freeze out



CONSERVATION STEWARDSHIP PROGRAM

Plant Species	Peak Bloom	Seeding Rate (lb/ac)		Seeding Date	Note
		Drilled	Broadcast		
Radish, forage (CSA) (ss)	-	8	10	Aug. 15 to Oct. 15 (best sown before Sept. 15) Feb. 20 to April 1	May freeze out at 25°F, tap root, 1.5 lbs/ac of brassicas is enough in mixes
Rye, cereal (CSA)	May	90	112	Aug. 15 to Nov. 20	Allelopathic to palmer amaranth, plant small seeded crops 2 weeks after rye termination
Sudangrass (WSA) (ss)	July	28	35	May 1 to June 20	Strong roots
Sunflower (WSA)	July – Aug	9	11	April 15 to May 15	Fat establishment, 1.0 lbs/ac is enough in mixes
Sun hemp, Tropical (WSA) (ss)	-	20	25	May 1 to July 20	Need 60 days minimum growth, high biomass and N producer
Sweet clover (CSB) (ss)	July	13	17	Aug. 15 to Oct. 15 Feb. 20 to April 1	Allelopathic to thistle and green foxtail, 1.0 lbs/ac is enough in mixes



CONSERVATION STEWARDSHIP PROGRAM

Plant Species	Peak Bloom	Seeding Rate (lb/ac)		Seeding Date	Note
		Drilled	Broadcast		
Turnips (CSA) (ss)	-	3	4	Aug. 15 to Oct. 15 Feb. 20 to April 1	Very small seed (use electric seeder or carrier like pelletized lime or crimson clover), no more than 0.5 lbs/ac of brassicas
Vetch, hairy (CSA) (ss)	May	22	28	Aug. 15 to Oct. 15 Feb. 20 to April 1	Can be invasive, late spring growth, tolerant to low fertility, high N producer
Wheat (CSA)	June	90	112	Sept. 15 to Nov. 10 Feb. 20 to April 1	Low cost quick cover, reduced vigor following sorghums
Winter Peas, Austrian (CSA) (ss)	May	40	50	Aug. 15 to Oct. 15 Feb. 20 to April 1	Slow to establish

Note: CSA = Cool Season Annual, CSP = Cool Season Perennial, WSA = Warm Season Annual, CSB = Cool Season Biennial, ss = subsoiler crop.



**TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY**

**CONSERVATION
STEWARDSHIP
PROGRAM**

E340118Z

**Cover crop to reduce water quality degradation by utilizing
excess soil nutrients – surface water**

Conservation Practice 340: Cover Crop

Additional Criteria for TN

- In addition to the criteria specified in the National Job Sheet E340101Z the following additional criteria apply in TN for the State Specific List of cover crops:
 - Cover crops will be planted no-till.
 - Ideal seeding depth is 8 X width of seed; in multiple species mixes, seeding depth should be 0.5” to 0.75”.
 - Refer to UT Weed Control Manual for herbicide use relative to crop rotation and restricted use:
<https://extension.tennessee.edu/publications/Documents/PB1580.pdf>
- Example Cover Crop Mixes are located on the following pages:

E340118Z - Cover crop to reduce water quality degradation by utilizing excess soil nutrients – surface water	December 2017 Page 1
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CONSERVATION STEWARDSHIP PROGRAM

Crop Mixtures	Seeding Rate (lb/ac)		Planting Date	C:N Ratio at Vegetative Stage	Excess Nutrients – Surface Water
	Drilled	Broadcast			
Simple Cover Crop Mix 1:					
Cereal Rye	20	26	Aug. 15 to Oct. 15	30	X
Wheat	20	26			X
Crimson Clover	5	7			
Austrian Winter Pea	14	18			
Radish	1	1			X
Simple Cover Crop Mix 2:					
Wheat	25	32	Aug. 15 to Oct. 15	25	X
Crimson Clover	5	7			
Austrian Winter Peas	14	18			
Hairy Vetch	5	7			
Radish	1	1			X



CONSERVATION STEWARDSHIP PROGRAM

Crop Mixtures	Seeding Rate (lb/ac)		Planting Date	C:N Ratio at Vegetative Stage	Excess Nutrients – Surface Water
	Drilled	Broadcast			
Multi Species Cover Crop Mix (Cool Season planted after corn):					
Cereal Rye	20	26	Aug. 15 to Oct. 15	31	X
Oats	20	26			
Austrian Winter Pea	11	14			
Crimson Clover	4	5			
Radish	1	1			X
Turnip	0.5	0.5			X
Multi Species Cover Crop Mix (Cool Season planted after corn):					
Cereal Rye	20	26	Aug. 15 to Oct. 15	32	X
Wheat	15	20			
Crimson Clover	4	5			
Radish	1.5	1.5			X
Hairy Vetch	4	5			



CONSERVATION STEWARDSHIP PROGRAM

Crop Mixtures	Seeding Rate (lb/ac)		Planting Date	C:N Ratio at Vegetative Stage	Excess Nutrients – Surface Water
	Drilled	Broadcast			
Multi Species Cover Crop Mix (Cool Season planted after corn):					
Cereal Rye	28	36	Aug. 15 to Oct. 15	35	X
Wheat	28	36			X
Crimson Clover	4	5			
Radish	1	1			X
Turnip	0.5	0.5			X
Multi Species Cover Crop Mix (Cool Season planted after double crop soybeans or cotton and up to 20% of land in full season soybeans):					
Cereal Rye	20	-	Drilled Only, up to Nov. 1	33	X
Triticale	20	-			X
Turnip	0.5	-			X
Crimson Clover or Hairy Vetch	5	-			
Austrian Winter Pea	13	-			



CONSERVATION STEWARDSHIP PROGRAM

Crop Mixtures	Seeding Rate (lb/ac)		Planting Date	C:N Ratio at Vegetative Stage	Excess Nutrients – Surface Water
	Drilled	Broadcast			
<p>Multi Species Cover Crop Mix (Warm Season) Double crop soybean producers could plant a warm season cover crop to achieve 3 consecutive years of cover crops. This option is available to all producers.</p>					
Buckwheat (optional)	1	1	April 20 to July 1	21	
Sunflowers (optional)	1	1			X
Sudangrass	10	13			X
Millet	4	5			X
Cowpeas	11	14			
Soybeans	11	14			
Turnips	1.5	1.5			X
Sun hemp	5	7			



- Additional Seeding Options (Full Rates Listed)

CONSERVATION STEWARDSHIP PROGRAM

Plant Species	Peak Bloom	Seeding Rate (lb/ac)		Seeding Date	Note
		Drilled	Broadcast		
Buckwheat (WSA)	21 days after planting	35	42	June 1 to Aug 15	Quick warm season cover, can be added as a minor component of fall cool season mix, 1.0 lb/ac is enough in mixes
Clover, crimson (CSA) (ss)	May	17	21	Aug. 15 to Oct. 15 Feb. 20 to April 1	Tap root, late spring growth
Clover, berseem (CSA) (ss)	June	11	14	Feb. 20 to April 1	Tap root
Clover, red (CSB) (ss)	July	8	10	Aug. 15 to Oct. 15 Feb. 20 to April 1	Tap root
Cowpea (WSA) (ss)	July	56	70	May 20 to June 20	Tap root, high N producer
Millet, Browntop (WSA)	August	17	21	May 1 to July 1	Quick cover
Oats (CSA)	May	100	140	Sept. 1 to Oct. 1 Feb. 20 to April 1	May freeze out



CONSERVATION STEWARDSHIP PROGRAM

Plant Species	Peak Bloom	Seeding Rate (lb/ac)		Seeding Date	Note
		Drilled	Broadcast		
Radish, forage (CSA) (ss)	-	8	10	Aug. 15 to Oct. 15 (best sown before Sept. 15) Feb. 20 to April 1	May freeze out at 25°F, tap root, 1.5 lbs/ac of brassicas is enough in mixes
Rye, cereal (CSA)	May	90	112	Aug. 15 to Nov. 20	Allelopathic to palmer amaranth, plant small seeded crops 2 weeks after rye termination
Sudangrass (WSA) (ss)	July	28	35	May 1 to June 20	Strong roots
Sunflower (WSA)	July – Aug	9	11	April 15 to May 15	Fat establishment, 1.0 lbs/ac is enough in mixes
Sun hemp, Tropical (WSA) (ss)	-	20	25	May 1 to July 20	Need 60 days minimum growth, high biomass and N producer
Sweet clover (CSB) (ss)	July	13	17	Aug. 15 to Oct. 15 Feb. 20 to April 1	Allelopathic to thistle and green foxtail, 1.0 lbs/ac is enough in mixes



CONSERVATION STEWARDSHIP PROGRAM

Plant Species	Peak Bloom	Seeding Rate (lb/ac)		Seeding Date	Note
		Drilled	Broadcast		
Turnips (CSA) (ss)	-	3	4	Aug. 15 to Oct. 15 Feb. 20 to April 1	Very small seed (use electric seeder or carrier like pelletized lime or crimson clover), <i>no more than 0.5 lbs/ac of brassicas</i>
Vetch, hairy (CSA) (ss)	May	22	28	Aug. 15 to Oct. 15 Feb. 20 to April 1	Can be invasive, late spring growth, tolerant to low fertility, high N producer
Wheat (CSA)	June	90	112	Sept. 15 to Nov. 10 Feb. 20 to April 1	Low cost quick cover, reduced vigor following sorghums
Winter Peas, Austrian (CSA) (ss)	May	40	50	Aug. 15 to Oct. 15 Feb. 20 to April 1	Slow to establish

Note: CSA = Cool Season Annual, CSP = Cool Season Perennial, WSA = Warm Season Annual, CSB = Cool Season Biennial, ss = subsoiler crop.



**TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY**

**CONSERVATION
STEWARDSHIP
PROGRAM**

E340119Z

**Cover crop to reduce water quality degradation by utilizing
excess soil nutrients – ground water**

Conservation Practice 340: Cover Crop

Additional Criteria for TN

- In addition to the criteria specified in the National Job Sheet E340101Z the following additional criteria apply in TN for the State Specific List of cover crops:
 - Cover crops will be planted no-till.
 - Ideal seeding depth is 8 X width of seed; in multiple species mixes, seeding depth should be 0.5” to 0.75”.
 - Refer to UT Weed Control Manual for herbicide use relative to crop rotation and restricted use:
<https://extension.tennessee.edu/publications/Documents/PB1580.pdf>
- Example Cover Crop Mixes are located on the following pages:

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CONSERVATION STEWARDSHIP PROGRAM

Crop Mixtures	Seeding Rate (lb/ac)		Planting Date	C:N Ratio at Vegetative Stage	Excess Nutrients – Ground Water
	Drilled	Broadcast			
Simple Cover Crop Mix 1:					
Cereal Rye	20	26	Aug. 15 to Oct. 15	30	X
Wheat	20	26			X
Crimson Clover	5	7			
Austrian Winter Pea	14	18			
Radish	1	1			X
Simple Cover Crop Mix 2:					
Wheat	25	32	Aug. 15 to Oct. 15	25	X
Crimson Clover	5	7			
Austrian Winter Peas	14	18			
Hairy Vetch	5	7			
Radish	1	1			X



CONSERVATION STEWARDSHIP PROGRAM

Crop Mixtures	Seeding Rate (lb/ac)		Planting Date	C:N Ratio at Vegetative Stage	Excess Nutrients – Ground Water
	Drilled	Broadcast			
Multi Species Cover Crop Mix (Cool Season planted after corn):					
Cereal Rye	20	26	Aug. 15 to Oct. 15	31	X
Oats	20	26			
Austrian Winter Pea	11	14			
Crimson Clover	4	5			
Radish	1	1			X
Turnip	0.5	0.5			X
Multi Species Cover Crop Mix (Cool Season planted after corn):					
Cereal Rye	20	26	Aug. 15 to Oct. 15	32	X
Wheat	15	20			
Crimson Clover	4	5			
Radish	1.5	1.5			X
Hairy Vetch	4	5			



CONSERVATION STEWARDSHIP PROGRAM

Crop Mixtures	Seeding Rate (lb/ac)		Planting Date	C:N Ratio at Vegetative Stage	Excess Nutrients – Ground Water
	Drilled	Broadcast			
<u>Multi Species Cover Crop Mix (Cool Season planted after corn):</u>					
Cereal Rye	28	36	Aug. 15 to Oct. 15	35	X
Wheat	28	36			X
Crimson Clover	4	5			X
Radish	1	1			X
Turnip	0.5	0.5			X
<u>Multi Species Cover Crop Mix (Cool Season planted after double crop soybeans or cotton and up to 20% of land in full season soybeans):</u>					
Cereal Rye	20	-	Drilled Only, up to Nov. 1	33	X
Triticale	20	-			X
Turnip	0.5	-			X
Crimson Clover or Hairy Vetch	5	-			
Austrian Winter Pea	13	-			



CONSERVATION STEWARDSHIP PROGRAM

Crop Mixtures	Seeding Rate (lb/ac)		Planting Date	C:N Ratio at Vegetative Stage	Excess Nutrients – Ground Water
	Drilled	Broadcast			
<p>Multi Species Cover Crop Mix (Warm Season) Double crop soybean producers could plant a warm season cover crop to achieve 3 consecutive years of cover crops. This option is available to all producers.</p>					
Buckwheat (optional)	1	1	April 20 to July 1	21	
Sunflowers (optional)	1	1			X
Sudangrass	10	13			X
Millet	4	5			X
Cowpeas	11	14			
Soybeans	11	14			
Turnips	1.5	1.5			X
Sun hemp	5	7			



- Additional Seeding Options (Full Rates Listed)

CONSERVATION STEWARDSHIP PROGRAM

Plant Species	Peak Bloom	Seeding Rate (lb/ac)		Seeding Date	Note
		Drilled	Broadcast		
Buckwheat (WSA)	21 days after planting	35	42	June 1 to Aug 15	Quick warm season cover, can be added as a minor component of fall cool season, 1.0 lb/ac is enough in mixes
Clover, crimson (CSA) (ss)	May	17	21	Aug. 15 to Oct. 15 Feb. 20 to April 1	Tap root, late spring growth
Clover, berseem (CSA) (ss)	June	11	14	Feb. 20 to April 1	Tap root
Clover, red (CSB) (ss)	July	8	10	Aug. 15 to Oct. 15 Feb. 20 to April 1	Tap root
Cowpea (WSA) (ss)	July	56	70	May 20 to June 20	Tap root, high N producer
Millet, Browntop (WSA)	August	17	21	May 1 to July 1	Quick cover
Oats (CSA)	May	100	140	Sept. 1 to Oct. 1 Feb. 20 to April 1	May freeze out



CONSERVATION STEWARDSHIP PROGRAM

Plant Species	Peak Bloom	Seeding Rate (lb/ac)		Seeding Date	Note
		Drilled	Broadcast		
Radish, forage (CSA) (ss)	-	8	10	Aug. 15 to Oct. 15 (best sown before Sept. 15) Feb. 20 to April 1	May freeze out at 25°F, tap root, 1.5 lbs/ac of brassicas is enough in mixes
Rye, cereal (CSA)	May	90	112	Aug. 15 to Nov. 20	Allelopathic to palmer amaranth, plant small seeded crops 2 weeks after rye termination
Sudangrass (WSA) (ss)	July	28	35	May 1 to June 20	Strong roots
Sunflower (WSA)	July – Aug	9	11	April 15 to May 15	Fat establishment, 1.0 lbs/ac is enough in mixes
Sun hemp, Tropical (WSA) (ss)	-	20	25	May 1 to July 20	Need 60 days minimum growth, high biomass and N producer
Sweet clover (CSB) (ss)	July	13	17	Aug. 15 to Oct. 15 Feb. 20 to April 1	Allelopathic to thistle and green



CONSERVATION STEWARDSHIP PROGRAM

					foxtail, 1.0 lbs/ac is enough in mixes
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Plant Species	Peak Bloom	Seeding Rate (lb/ac)		Seeding Date	Note
		Drilled	Broadcast		
Turnips (CSA) (ss)	-	3	4	Aug. 15 to Oct. 15 Feb. 20 to April 1	Very small seed (use electric seeder or carrier like pelletized lime or crimson clover), no more than 0.5 lbs/ac of brassicas
Vetch, hairy (CSA) (ss)	May	22	28	Aug. 15 to Oct. 15 Feb. 20 to April 1	Can be invasive, late spring growth, tolerant to low fertility, high N producer
Wheat (CSA)	June	90	112	Sept. 15 to Nov. 10 Feb. 20 to April 1	Low cost quick cover, reduced vigor following sorghums
Winter Peas, Austrian (CSA) (ss)	May	40	50	Aug. 15 to Oct. 15 Feb. 20 to April 1	Slow to establish

Note: CSA = Cool Season Annual, CSP = Cool Season Perennial, WSA = Warm Season Annual, CSB = Cool Season Biennial, ss = subsoiler crop.



**TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY**

**CONSERVATION
STEWARDSHIP
PROGRAM**

E340134Z

Cover crop to suppress excessive weed pressures and break pest cycles

Conservation Practice 340: Cover Crop

Additional Criteria for TN

- In addition to the criteria specified in the National Job Sheet E340101Z the following additional criteria apply in TN for the State Specific List of cover crops:
 - Cover crops will be planted no-till.
 - Ideal seeding depth is 8 X width of seed; in multiple species mixes, seeding depth should be 0.5” to 0.75”.
 - Refer to UT Weed Control Manual for herbicide use relative to crop rotation and restricted use:
<https://extension.tennessee.edu/publications/Documents/PB1580.pdf>
- Example Cover Crop Mixes are located on the following pages:

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CONSERVATION STEWARDSHIP PROGRAM

Crop Mixtures	Seeding Rate (lb/ac)		Planting Date	C:N Ratio at Vegetative Stage	Weed Pressure (W), Pest Cycles (P) or Both (X)
	Drilled	Broadcast			
Simple Cover Crop Mix 1:					
Cereal Rye	20	26	Aug. 15 to Oct. 15	30	W
Wheat	20	26			W
Crimson Clover	5	7			
Austrian Winter Pea	14	18			
Radish	1	1			X
Simple Cover Crop Mix 2:					
Wheat	25	32	Aug. 15 to Oct. 15	25	W
Crimson Clover	5	7			
Austrian Winter Peas	14	18			
Hairy Vetch	5	7			
Radish	1	1			X



CONSERVATION STEWARDSHIP PROGRAM

Crop Mixtures	Seeding Rate (lb/ac)		Planting Date	C:N Ratio at Vegetative Stage	Weed Pressure (W), Pest Cycles (P) or Both (X)
	Drilled	Broadcast			
Multi Species Cover Crop Mix (Cool Season planted after corn):					
Cereal Rye	20	26	Aug. 15 to Oct. 15	31	W
Oats	20	26			W
Austrian Winter Pea	11	14			
Crimson Clover	4	5			
Radish	1	1			X
Turnip	0.5	0.5			X
Multi Species Cover Crop Mix (Cool Season planted after corn):					
Cereal Rye	20	26	Aug. 15 to Oct. 15	32	W
Wheat	15	20			W
Crimson Clover	4	5			
Radish	1.5	1.5			X
Hairy Vetch	4	5			



CONSERVATION STEWARDSHIP PROGRAM

Crop Mixtures	Seeding Rate (lb/ac)		Planting Date	C:N Ratio at Vegetative Stage	Weed Pressure (W), Pest Cycles (P) or Both (X)
	Drilled	Broadcast			
Multi Species Cover Crop Mix (Cool Season planted after corn):					
Cereal Rye	28	36	Aug. 15 to Oct. 15	35	W
Wheat	28	36			W
Crimson Clover	4	5			
Radish	1	1			X
Turnip	0.5	0.5			X
Multi Species Cover Crop Mix (Cool Season planted after double crop soybeans or cotton and up to 20% of land in full season soybeans):					
Cereal Rye	20	-	Drilled Only, up to Nov. 1	33	W
Triticale	20	-			W
Turnip	0.5	-			X
Crimson Clover or Hairy Vetch	5	-			
Austrian Winter Pea	13	-			



CONSERVATION STEWARDSHIP PROGRAM

Crop Mixtures	Seeding Rate (lb/ac)		Planting Date	C:N Ratio at Vegetative Stage	Weed Pressure (W), Pest Cycles (P) or Both (X)
	Drilled	Broadcast			
<p>Multi Species Cover Crop Mix (Warm Season) Double crop soybean producers could plant a warm season cover crop to achieve 3 consecutive years of cover crops. This option is available to all producers.</p>					
Buckwheat (optional)	1	1	April 20 to July 1	21	X
Sunflowers (optional)	1	1			X
Sudangrass	10	13			X
Millet	4	5			W
Cowpeas	11	14			
Soybeans	11	14			
Turnips	1.5	1.5			X
Sun hemp	5	7			



- Additional Seeding Options (Full Rates Listed)

CONSERVATION STEWARDSHIP PROGRAM

Plant Species	Peak Bloom	Seeding Rate (lb/ac)		Seeding Date	Note
		Drilled	Broadcast		
Buckwheat (WSA)	21 days after planting	35	42	June 1 to Aug 15	Quick warm season cover, can be added as a minor component of fall cool season, 1.0 lb/ac is enough in mixes
Clover, crimson (CSA) (ss)	May	17	21	Aug. 15 to Oct. 15 Feb. 20 to April 1	Tap root, late spring growth
Clover, berseem (CSA) (ss)	June	11	14	Feb. 20 to April 1	Tap root
Clover, red (CSB) (ss)	July	8	10	Aug. 15 to Oct. 15 Feb. 20 to April 1	Tap root
Cowpea (WSA) (ss)	July	56	70	May 20 to June 20	Tap root, high N producer
Millet, Browntop (WSA)	August	17	21	May 1 to July 1	Quick cover
Oats (CSA)	May	100	140	Sept. 1 to Oct. 1 Feb. 20 to April 1	May freeze out



CONSERVATION STEWARDSHIP PROGRAM

Plant Species	Peak Bloom	Seeding Rate (lb/ac)		Seeding Date	Note
		Drilled	Broadcast		
Radish, forage (CSA) (ss)	-	8	10	Aug. 15 to Oct. 15 (best sown before Sept. 15) Feb. 20 to April 1	May freeze out at 25°F, tap root, 1.5 lbs/ac of brassicas is enough in mixes
Rye, cereal (CSA)	May	90	112	Aug. 15 to Nov. 20	Allelopathic to palmer amaranth, plant small seeded crops 2 weeks after rye termination
Sudangrass (WSA) (ss)	July	28	35	May 1 to June 20	Strong roots
Sunflower (WSA)	July – Aug	9	11	April 15 to May 15	Fat establishment, 1.0 lbs/ac is enough in mixes
Sun hemp, Tropical (WSA) (ss)	-	20	25	May 1 to July 20	Need 60 days minimum growth, high biomass and N producer
Sweet clover (CSB) (ss)	July	13	17	Aug. 15 to Oct. 15 Feb. 20 to April 1	Allelopathic to thistle and green



CONSERVATION STEWARDSHIP PROGRAM

					foxtail, 1.0 lbs/ac is enough in mixes
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Plant Species	Peak Bloom	Seeding Rate (lb/ac)		Seeding Date	Note
		Drilled	Broadcast		
Turnips (CSA) (ss)	-	3	4	Aug. 15 to Oct. 15 Feb. 20 to April 1	Very small seed (use electric seeder or carrier like pelletized lime or crimson clover), no more than 0.5 lbs/ac of brassicas
Vetch, hairy (CSA) (ss)	May	22	28	Aug. 15 to Oct. 15 Feb. 20 to April 1	Can be invasive, late spring growth, tolerant to low fertility, high N producer
Wheat (CSA)	June	90	112	Sept. 15 to Nov. 10 Feb. 20 to April 1	Low cost quick cover, reduced vigor following sorghums
Winter Peas, Austrian (CSA) (ss)	May	40	50	Aug. 15 to Oct. 15 Feb. 20 to April 1	Slow to establish

Note: CSA = Cool Season Annual, CSP = Cool Season Perennial, WSA = Warm Season Annual, CSB = Cool Season Biennial, ss = subsoiler crop.



TENNESSEE SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E381133Z

Silvopasture for wildlife habitat (structure and composition)

Conservation Practice 381: Silvopasture Establishment

Additional Criteria for TN

- In addition to the criteria specified in the National job sheet E381133Z the following additional criteria apply in TN for Silvopasture Establishment:
- Must be planned in conjunction with State Grazing Lands specialist. Planting trees into existing pasture is the only eligible practice for this enhancement. Planting mixture must be approved by NRCS area biologist/ Partner Biologist/ State Grazing Specialist.
- **Spacing and Light Management:** The layout of trees can be scattered or in rows or a combination of the two. Minimum trees per acre is 27 trees/ac (average spacing of 40'x40') and the maximum to grow grass is 304 trees/ac (average spacing of 8'x 18'). Thinning may be required in the future to improve tree growth and maintain productive grass due to competition.
- **Livestock exclusion:** If trees are less than 15' tall they will need to be protected from livestock. Livestock exclusion can be: a fence that restrains livestock away from the terminal bud and trunk, factors are height of the fence and distance from the tree (i.e. 42" electric fence and 24" inset of tree), a cage 18" diameter 6' tall, 6' diameter 5' high or tubex or vexar 6' tall secured with multiple post to prevent damage from livestock. Be observant watching for any potential damage to trees. When trees are young they are particularly prone to browsing and being rubbed on. Protection of the terminal bud is the main concern. In wet conditions do not allow livestock to graze timber areas where soils are prone to compaction (e.g. Godwin soil type).

E381133Z - Silvopasture for wildlife habitat (structure and composition)	December 2017	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- **Grazing Management:** Practice rotational grazing for cool season forages. Allow forages to reach a minimum of 8” prior to grazing and graze down to 4” or taller. Allowing forages to reach the boot to early head stage is ideal for soil health and achieving the best balance of biomass for and forage quality. Livestock should not be allowed to denude land under trees, strive to maintain soil cover of both residual plants and dead residue. Rotation will be based on grass height, cover and impacts on trees and all vegetation however an approximate rotation will be 4 days or less on a paddock and a recovery time of 28 days or more. A recovery time of 45 days or more will be strived for. In the winter time a recovery time between grazing may be as long as 210 days.

Native warm season grasses (NWSG) will be 24” tall prior to grazing and not grazed lower than 10”. Manage for 12” height or taller prior to the first frost or November 1 whichever occurs first. After frost they can be grazed, it may improve production of NWSG to graze them low in March prior to green up. If vigor of native grasses is slower than expected allow them a longer regrowth period prior to grazing remove no more than half of the height when you do graze them.

Legumes can be overseeded if warranted during February and March. NWSG can have legumes overseeded after two years of establishment.



TENNESSEE SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E381137Z

Silvopasture for wildlife habitat (cover and shelter)

Conservation Practice 381: Silvopasture Establishment

Additional Criteria for TN

- In addition to the criteria specified in the National job sheet E381133Z the following additional criteria apply in TN for Silvopasture Establishment:
- Must be planned in conjunction with State Grazing Lands specialist. Planting trees into existing pasture is the only eligible practice for this enhancement. Planting mixture must be approved by NRCS area biologist/ Partner Biologist/ State Grazing Specialist.
- **Spacing and Light Management:** The layout of trees can be scattered or in rows or a combination of the two. Minimum trees per acre is 27 trees/ac (average spacing of 40'x40') and the maximum to grow grass is 304 trees/ac (average spacing of 8'x 18'). Thinning may be required in the future to improve tree growth and maintain productive grass due to competition.
- **Livestock exclusion:** If trees are less than 15' tall they will need to be protected from livestock. Livestock exclusion can be: a fence that restrains livestock away from the terminal bud and trunk, factors are height of the fence and distance from the tree (i.e. 42" electric fence and 24" inset of tree), a cage 18" diameter 6' tall, 6' diameter 5' high or tubex or vexar 6' tall secured with multiple post to prevent damage from livestock. Be observant watching for any potential damage to trees. When trees are young they are particularly prone to browsing and being rubbed on. Protection of the terminal bud is the main concern. In wet conditions do not allow livestock to graze timber areas where soils are prone to compaction (e.g. Godwin soil type).



CONSERVATION STEWARDSHIP PROGRAM

- **Grazing Management:** Practice rotational grazing for cool season forages. Allow forages to reach a minimum of 8” prior to grazing and graze down to 4” or taller. Allowing forages to reach the boot to early head stage is ideal for soil health and achieving the best balance of biomass for and forage quality. Livestock should not be allowed to denude land under trees, strive to maintain soil cover of both residual plants and dead residue. Rotation will be based on grass height, cover and impacts on trees and all vegetation however an approximate rotation will be 4 days or less on a paddock and a recovery time of 28 days or more. A recovery time of 45 days or more will be strived for. In the winter time a recovery time between grazing may be as long as 210 days.

Native warm season grasses (NWSG) will be 24” tall prior to grazing and not grazed lower than 10”. Manage for 12” height or taller prior to the first frost or November 1 whichever occurs first. After frost they can be grazed, it may improve production of NWSG to graze them low in March prior to green up. If vigor of native grasses is slower than expected allow them a longer regrowth period prior to grazing remove no more than half of the height when you do graze them.

Legumes can be overseeded if warranted during February and March. NWSG can have legumes overseeded after two years of establishment.



TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION
STEWARDSHIP
PROGRAM

E382136Z

Incorporating “wildlife friendly” fencing for connectivity of wildlife food resources

Conservation Practice 382: Fence

Additional Criteria for TN

- In addition to the criteria specified in the National job sheet E382136Z the following additional criteria apply in TN for wildlife friendly fencing:
- This supplement is applicable to both boundary and interior permanent fences.
- Only existing woven wire fence is eligible for treatment under this enhancement, which must be removed.
 - Stretches of fence removal “gaps” will be a minimum of 20’.
 - At least 20% of all permanent woven wire fencing on the offered acres must be removed to meet this enhancement. “Gaps” for removal of woven wire fence will be placed randomly. Woven wire fence cannot exceed 200’ in length without one “gap” installed.
- Bulldozing a fence out is not an allowable method of removal. Tractors and other equipment can be used to remove woven where feasible. If hedgerows are present, fence removal in hedgerows cannot exceed 20% of hedgerow length.
 - Strand fencing (barbed or high tensile) may be used to replace the “gaps”. Wire spacing must meet the following dimensions:

E382136Z – Incorporating “wildlife friendly” fencing for connectivity of wildlife food resources	December 2017	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

- 42-inch maximum fence height, and
 - 12 inch spacing between top two wires, and
 - 16 inch spacing between the bottom strand and the ground.
- All possible travel lanes or wildlife corridor areas must be treated first under this enhancement before random fence sections can be treated to meet the 20% minimum. Wildfire travel lanes and corridor areas in order of priority are:
 - Existing game (deer) trails
 - Forested ridge saddles and benches
 - Riparian corridors and bottoms
 - Early successional native grass or cut over forestland
 - Along gullies
 - Forest interior and forest/non-forest boundary fences
 - Near permanent water sources
 - Corners



TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION
STEWARDSHIP
PROGRAM

E386136Z

Enhanced field borders to increase food for pollinators
along the edge(s) of a field

Conservation Practice 386: Field Border

Additional Criteria for TN

- In addition to the criteria specified in the National job sheet E386136Z the following additional criteria apply in TN for field borders:
- Existing Field border must have a minimum width of 20 feet.
- **Follow recommended mixture approved by NRCS Area Biologist or NRCS Partner Biologist or from the pre-approved list (if provided).**
- Soil test (UT Soil Testing Lab or any certified NAPT Lab) required for all permanent herbaceous plants. Areas of contrasting soils, problem spots or portions of field significantly different should be sampled separately, proved the area can be fertilized separately (examples: bottomland and upland). See University of Tennessee publication PB 1061 for soil sampling information at:
<https://extension.tennessee.edu/publications/Documents/PB1061.pdf>
If pH is 5.0 or higher apply no lime; if lower apply 2 tons per acre. Do not apply fertilizer at planting.
- Soil Test not required for shrub plantings.
- Shrub Component (Optional: from 0-100%). Shrub borders shall consist of multiple species (excluding multiple sumac species). A shrub component within a herbaceous border may consist of a monoculture planting (e.g. a plum thicket). Consideration

E386136Z - Enhanced field borders to increase food for pollinators along the edge(s) of a field	December 2017	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

should be given to have from 2.5% or 30% of a planned pollinator border in shrubs as block plantings (thickets) or in conjunction with a hedgerow practice.

- Use herbicides in accordance with the label. Tame grasses are required to be chemically eradicated prior to establishment of the field border. Tame grasses include any prostrate or sod-forming grasses including such species as tall fescue and Bermudagrass. NRCS will not provide herbicide recommendations.
- Field borders shall not be used as roads or equipment storage.
- Mowing and other disturbance will be outside the primary nesting season (April 15th-August 15th) except during the establishment period.
- Ending mowing heights will be 10” or greater.
- After the establishment period, acreage should not be mowed more than once a year (March preferred).
- After the establishment period, not more than half of the buffer should be mowed in any year.
- Any grazing on the area will be completed according to a detailed grazing plan developed with TN NRCS.



CONSERVATION STEWARDSHIP PROGRAM

Approved Planting Mixtures:

Pollinator and Beneficial Species Plantings Site Suitability Recommendations for USDA-NRCS Tennessee

Revised: 3/15/18

A site-specific and species-specific wildlife habitat mixture is preferred for all situations. This guidance document is intended to assist NRCS conservation planners address resource concerns and limiting habitat factors identified in the TN NRCS Wildlife Habitat Evaluation Guide (WHEG). General native grass and pollinator habitat mixes are not noted in this document. **Contact a NRCS Biologist or NRCS Partner Biologist for assistance with developing any mixes.**

Financially assisted participants are required to follow specific program guidelines for vegetation establishment; refer to program specific requirements (i.e. Practice Standard, Requirement Sheet, Enhancement Criteria, TN Supplemental Guidance, etc. as applicable by program year).

NATIVE BUNCH GRASS		
Seeding Dates: December 1 – June 1		
Species	Height	Growth Conditions
Big bluestem	4' – 10'	Warm season, perennial, full sun, dry to moist sites
Little bluestem	2' – 4'	Warm season, perennial, full sun, dry to moist sites
Indiangrass	3' – 6'	Warm season, perennial, full sun, dry to moist sites
Sideoats grama	1' - 3'	Warm season, perennial, full sun, dry to moist sites
Switchgrass	3' – 7'	Warm season, perennial, full sun, dry to wet sites
Eastern gammagrass	4' – 8'	Warm season, perennial, full sun to partial shade, dry to wet sites
Virginia Wild Rye	2 – 4'	Cool season, perennial, partial shade, moist sites
<i>* Native grass seeding rates are based on Pure Live Seed (PLS) per acre instead of total weight.</i>		
<i>* Diverse mixes are encouraged to include native forbs per a biologist's recommendation.</i>		
<i>*Proper planting depth and site prep. herbicide is critical to successful establishment. See reference materials or contact biologist for guidance.</i>		



CONSERVATION STEWARDSHIP PROGRAM

FORBS_Pollinator		
Seeding Dates: December 1 – June 1		
Species & Lifespan*	Bloom Period & Color*	Site Conditions Range*
Lanceleaf coreopsis (P)	spring, mid-summer (Y)	moist to dry, full sun
Purple prairieclover (P)	spring, mid-summer (Pi)	moist to dry, full sun
Illinois bundleflower (P)	spring, mid-summer (W)	dry to wet, full sun
Butterfly milkweed (P)	late spring, summer (O)	moist to dry, full sun
Common Milkweed (P)	late spring, summer (Pi)	moist to dry, full sun
Blue wild indigo (P)	late spring, summer (Pu)	moist to dry, full sun
Pale purple coneflower (P)	late spring, summer (Pu)	moist to dry, partial shade
Purple coneflower (P)	late spring, summer, fall (Pu)	dry to wet, partial shade
False sunflower (P)	late spring, summer, fall (Y)	dry to wet, full sun
Gray-headed coneflower (P)	late spring, summer, fall (Y)	moist to dry, full sun
Black-eyed susan (B)	late spring, summer, fall (Y)	moist to dry, full sun
Partridge pea (A)	summer, fall (Y)	moist to dry, full sun
Cardinal Flower (P)	summer, fall (R)	moist to wet, partial shade
Tick-trefoil (Desmodium sp.) (P)	summer, fall (Pi)	moist to dry, partial shade
Maximillian sunflower (P)	summer, fall (Y)	dry to wet, full sun
Mexican hat (P)	summer, fall (Y)	moist to dry, full sun
Rigid goldenrod (P)	late summer, fall (Y)	moist to dry, full sun
<i>*Lifespan: (A)=Annual, (B)=Biennial, (P)=Perennial</i>		
<i>*Bloom color: (Y)=Yellow, (R)=Red, (O)=Orange, (W)=White, (Pi)=Pink, (Pu)=Purple</i>		
<i>*Dry = drier than a well-drained soil; tending toward droughty.</i>		
<i>*Moist = wetter than moderately well drained soils; good moisture holding capacity but generally not hydric.</i>		
<i>*Wet = wetter than a well-drained soil; may be a hydric soil due to persistent high-water table.</i>		



CONSERVATION STEWARDSHIP PROGRAM

SHRUBS_Pollinator			
Planting Dates: November 1 – April 15 (November 15 – April 1, West TN Only)			
Species	Bloom Period	Shade Tolerance	Site Condition Range*
Crabapple	spring	intolerant	moist, well drained
Dogwood, Silky	spring		moist, well to poorly drained
Plum, Chickasaw	spring		dry, well drained
Plum, American	spring		moist, well drained
Alder, Smooth	spring	intermediate	moist, well to poorly drained
Hazelnut, American	spring		moist to dry, well drained
Blueberry	spring		moist to dry, well drained
Chinkapin, Allegheny	late spring		dry, well drained
Indigobush	late spring	intolerant	moist to mod. well drained
Sumac, Fragrant	late spring	intermediate	dry, well drained
Blue Wild Indigo ¹	late spring	intolerant	moist to dry, well drained
Beautyberry, American	summer		moist to mod. well drained
Elderberry	summer		moist, poorly drained
Sumac, Winged	summer	intolerant	dry, well drained
Sumac, Staghorn	summer	tolerant	dry, well drained
Sumac, Smooth	summer	intolerant	dry, well drained
Viburnum, Mapleleaf	summer	tolerant	moist to dry, well drained
<i>* Recommended to select ≥ 3 species, only 1 sumac species per planting mixture.</i>			
<i>*Dry = drier than a well-drained soil; tending toward droughty.</i>			
<i>*Moist=wetter than moderately well drained soils; good moisture holding capacity but generally not hydric.</i>			
<i>*Wet=wetter than a well-drained soil; may be a hydric soil due to persistent high-water table.</i>			
<i>*Well drained = good drainage but not rapid; typically, a loamy soil with adequate plant available water.</i>			
<i>*Poorly drained = generally a hydric soil due to persistent high-water table.</i>			
<i>¹Blue wild indigo is a forb but provides shrubby structure and may be used as a shrub.</i>			



CONSERVATION STEWARDSHIP PROGRAM

TREE / SHRUB SPACING TABLE		
Spacing	No. per acre	Common Uses
8' x 8'	681	Shrub plantings for wildlife. Conifer plantings for timber product.
8' x 10'	544	
10' x 10'	436	
10' x 12'	363	Riparian buffers. Hardwoods planted for sawtimber.
12' x 12'	302	Riparian buffers. Hardwoods planted for sawtimber. Wildlife tree plantings.
15' x 15'	194	Some hardwoods planted for sawtimber. Some wildlife tree plantings.
17' x 17'	150	Low density: high quality
20' x 20'	109	Most production of some hardwoods.



TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION
STEWARDSHIP
PROGRAM

E390118Z

Increase riparian herbaceous cover width for nutrient reduction

Conservation Practice 390: Riparian Herbaceous Cover

Additional Criteria for TN

- In addition to the criteria specified in the National job sheet E390118Z the following additional criteria apply in TN for Riparian Herbaceous Cover:
- Soil test (UT Soil Testing Lab or any certified NAPTP Lab) required for all permanent herbaceous plants. Areas of contrasting soils, problem spots or portions of field significantly different should be sampled separately, proved the area can be fertilized separately (examples: bottomland and upland). See University of Tennessee publication PB 1061 for soil sampling information at: (<https://extension.tennessee.edu/publications/Documents/PB1061.pdf>)

For NWSG plantings, if pH is 5.0 or higher apply no lime; if lower apply lime according to UT Soil Test Recommendations. Do not apply fertilizer at planting.

- **Follow recommended mixture approved by NRCS Area Biologist or NRCS Partner Biologist or from the pre-approved list (if provided).**
- Species meeting the criteria of having stiff stems and high stem density near the ground surface that are adapted to the duration of saturation and inundation of the site:
 - Switchgrass –
 - Seeding Rate: 8 to 10 lbs/acre
 - Seeding Dates: February 1-June 1.

E390118Z - Increase riparian herbaceous cover width for nutrient reduction	December 2017	Page 1
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TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION
STEWARDSHIP
PROGRAM

E390126Z

Increase riparian herbaceous cover width to reduce sediment loading

Conservation Practice 390: Riparian Herbaceous Cover

Additional Criteria for TN

- In addition to the criteria specified in the National job sheet E390118Z the following additional criteria apply in TN for Riparian Herbaceous Cover:
- Soil test (UT Soil Testing Lab or any certified NAPTP Lab) required for all permanent herbaceous plants. Areas of contrasting soils, problem spots or portions of field significantly different should be sampled separately, proved the area can be fertilized separately (examples: bottomland and upland). See University of Tennessee publication PB 1061 for soil sampling information at: (<https://extension.tennessee.edu/publications/Documents/PB1061.pdf>)

For NWSG plantings, if pH is 5.0 or higher apply no lime; if lower apply lime according to UT Soil Test Recommendations. Do not apply fertilizer at planting.

- **Follow recommended mixture approved by NRCS Area Biologist or NRCS Partner Biologist or from the pre-approved list (if provided).**
- Species meeting the criteria of having stiff stems and high stem density near the ground surface that are adapted to the duration of saturation and inundation of the site:
 - Switchgrass –
 - Seeding Rate: 8 to 10 lbs/acre
 - Seeding Dates: February 1-June 1.

E390126Z -Increase riparian herbaceous cover width to reduce sediment loading	December 2017	Page 1
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TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION
STEWARDSHIP
PROGRAM

E390136Z

Increase riparian herbaceous cover width to enhance
wildlife habitat

Conservation Practice 390: Riparian Herbaceous Cover

Additional Criteria for TN

- In addition to the criteria specified in the National job sheet E390136Z the following additional criteria apply in TN for riparian herbaceous cover:
- **A wildlife management plan is required.**
- **Follow recommended mixture approved by NRCS Area Biologist or NRCS Partner Biologist or from the pre-approved list (if provided).**
- Soil test (UT Soil Testing Lab or any certified NAPTP Lab) required for all permanent herbaceous plants. Areas of contrasting soils, problem spots or portions of field significantly different should be sampled separately, proved the area can be fertilized separately (examples: bottomland and upland). See University of Tennessee publication PB 1061 for soil sampling information at: (<https://extension.tennessee.edu/publications/Documents/PB1061.pdf>)

For NWSG plantings, if pH is 5.0 or higher apply no lime; if lower apply lime according to UT Soil Test Recommendations. Do not apply fertilizer at planting.

- Mowing and other disturbance will be outside the primary nesting season (April 15th- August 15th) except during the establishment period.
- Ending mowing heights will be 10” or greater.
- After the establishment period, acreage should not be mowed more than once a year (March preferred).

E390136Z - Increase riparian herbaceous cover width to enhance wildlife habitat	December 2017	Page 1
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- After the establishment period, not more than half of the buffer should be mowed in any year.
- Any grazing on the area will be completed according to a detailed grazing plan developed with TN NRCS.

CONSERVATION STEWARDSHIP PROGRAM





TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION
STEWARDSHIP
PROGRAM

E391136Z

Increase riparian forest buffer width to enhance wildlife habitat

Additional Criteria for Tennessee

- Follow recommended mixture approved by NRCS Area Biologist or NRCS Partner Biologist or from the pre-approved list (if provided).

**Wildlife Habitat Plantings Site Suitability Recommendations
for
USDA-NRCS Tennessee**

Revised: 10-20-2017

A site-specific and species-specific wildlife habitat mixture is preferred for all situations. This guidance document is intended to assist NRCS conservation planners address resource concerns and limiting habitat factors identified in the TN NRCS Wildlife Habitat Evaluation Guide (WHEG). General native grass and pollinator habitat mixes are not noted in this document; **contact a NRCS Biologist or NRCS Partner Biologist for assistance with site-specific mixes.**

Financially assisted participants are required to follow specific program guidelines for vegetation establishment; refer to program specific requirements (i.e. Practice Standard, Requirement Sheet, Enhancement Criteria, TN Supplemental Guidance, etc. as applicable by program year).

E391136Z -Increase riparian forest buffer width to enhance wildlife habitat	December 2017	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

NATIVE BUNCH GRASS		
Seeding Dates: December 1 – June 1		
Species	Height	Growth Conditions
Big bluestem	4' – 10'	Warm season, perennial, full sun, dry to moist sites
Little bluestem	2' – 4'	Warm season, perennial, full sun, dry to moist sites
Indiangrass	3' – 6'	Warm season, perennial, full sun, dry to moist sites
Sideoats grama	1' - 3'	Warm season, perennial, full sun, dry to moist sites
Switchgrass	3' – 7'	Warm season, perennial, full sun, dry to wet sites
Eastern gammagrass	4' – 8'	Warm season, perennial, full sun to partial shade, dry to wet sites
Virginia Wild Rye	2 – 4'	Cool season, perennial, partial shade, moist sites
<i>* Native grass seeding rates are based on Pure Live Seed (PLS) per acre instead of total weight.</i>		
<i>* Diverse mixes are encouraged to include native forbs per a biologist's recommendation.</i>		
<i>*Proper planting depth and site prep. herbicide is critical to successful establishment. See reference materials or contact biologist for guidance.</i>		



CONSERVATION STEWARDSHIP PROGRAM

FORBS		
Seeding Dates: December 1 – June 1		
Species & Lifespan*	Bloom Period & Color*	Site Conditions Range*
Lanceleaf coreopsis (P)	spring, mid-summer (Y)	moist to dry, full sun
Purple prairieclover (P)	spring, mid-summer (Pi)	moist to dry, full sun
Illinois bundleflower (P)	spring, mid-summer (W)	dry to wet, full sun
Butterfly milkweed (P)	late spring, summer (O)	moist to dry, full sun
Common Milkweed (P)	late spring, summer (Pi)	moist to dry, full sun
Blue wild indigo (P)	late spring, summer (Pu)	moist to dry, full sun
Pale purple coneflower (P)	late spring, summer (Pu)	moist to dry, partial shade
Purple coneflower (P)	late spring, summer, fall (Pu)	dry to wet, partial shade
False sunflower (P)	late spring, summer, fall (Y)	dry to wet, full sun
Gray-headed coneflower (P)	late spring, summer, fall (Y)	moist to dry, full sun
Black-eyed susan (B)	late spring, summer, fall (Y)	moist to dry, full sun
Partridge pea (A)	summer, fall (Y)	moist to dry, full sun
Cardinal Flower (P)	summer, fall (R)	moist to wet, partial shade
Tick-trefoil (Desmodium sp.) (P)	summer, fall (Pi)	moist to dry, partial shade
Maximillian sunflower (P)	summer, fall (Y)	dry to wet, full sun
Mexican hat (P)	summer, fall (Y)	moist to dry, full sun
Rigid goldenrod (P)	late summer, fall (Y)	moist to dry, full sun
<i>*Lifespan: (A)=Annual, (B)=Biennial, (P)=Perennial</i>		
<i>*Bloom color: (Y)=Yellow, (R)=Red, (O)=Orange, (W)=White, (Pi)=Pink, (Pu)=Purple</i>		
<i>*Dry = drier than a well-drained soil; tending toward droughty.</i>		
<i>*Moist = wetter than moderately well drained soils; good moisture holding capacity but generally not hydric.</i>		
<i>*Wet = wetter than a well-drained soil; may be a hydric soil due to persistent high-water table.</i>		



CONSERVATION STEWARDSHIP PROGRAM

TREES			
Planting Dates: November 1 – April 15 (November 15 – April 1, West TN Only)			
Species	Group	Shade Tolerance	Site Condition Range*
Bur Oak	White Oak		moist to dry, well drained, fire tolerant
Swamp White Oak	White Oak		moist to wet, poorly drained
Chestnut Oak	White Oak		moist to dry, well drained
Post Oak	White Oak		moist to dry, well drained, fire tolerant
Overcup Oak	White Oak		moist to wet, poorly drained
White Oak	White Oak		moist to dry, well drained
Shingle Oak	Red Oak		moist to dry, well drained
Black Oak	Red Oak		moist to dry, well drained
Pin Oak	Red Oak		dry to wet, poorly drained
Southern Red Oak	Red Oak		moist to dry, well drained
Nuttall Oak	Red Oak		moist to wet, poorly drained
Willow Oak	Red Oak		moist to wet, well drained
Water Oak	Red Oak		moist to wet, poorly drained
Laurel Oak	Red Oak		moist to wet, well drained
Shumard Oak	Red Oak		most to wet, poorly drained
Cherrybark Oak	Red Oak		moist, well drained
Chinkapin Oak	Red Oak		moist to dry, well drained
Hickory, Shagbark	Other Hard Mast		moist to dry, well drained
Hickory, Shellbark	Other Hard Mast		moist to wet, well drained
Hickory, Mockernut	Other Hard Mast		moist to dry, well drained
Pecan, Native Sweet	Other Hard Mast	intolerant	moist to dry, well drained
American Beech	Other Hard Mast	tolerant	moist, well drained
Chestnut, American (hybrid)	Other Hard Mast	intermediate	moist to dry, well drained
Flowering Dogwood	Soft Mast	tolerant	moist, well drained
Black Cherry	Soft Mast	intolerant	moist to dry, well drained
Blackgum	Soft Mast	tolerant	moist to dry, well drained, fire tolerant
Washington Hawthorn	Soft Mast		moist to dry, well drained
Eastern Redbud	Soft Mast		moist to dry, well drained



CONSERVATION STEWARDSHIP PROGRAM

Persimmon	Soft Mast	intermediate	dry to wet, well to poorly drained
Mulberry, Red	Soft Mast	intermediate	moist, well drained
Pawpaw	Soft Mast	tolerant	moist, well drained
Shortleaf Pine	Pine	intolerant	moist to dry, well drained, fire tolerant
White Pine	Pine	intermediate	moist to dry, well drained
Virginia Pine	Pine	intolerant	moist to dry, well drained
* Recommended to select ≥ 3 species, and at least one from red oak and white oak groups.			
*Dry = drier than a well-drained soil; tending toward droughty.			
*Moist=wetter than moderately well drained soils; good moisture holding capacity but generally not hydric.			
*Wet = wetter than a well-drained soil; may be a hydric soil due to persistent high-water table.			
*Well drained = good drainage but not rapid; typically, a loamy soil with adequate plant available water.			
*Poorly drained = generally a hydric soil due to persistent high-water table.			

SHRUBS			
Planting Dates: November 1 – April 15 (November 15 – April 1, West TN Only)			
Species	Bloom Period	Shade Tolerance	Site Condition Range*
Crabapple	spring	intolerant	moist, well drained
Dogwood, Silky	spring		moist, well to poorly drained
Plum, Chickasaw	spring		dry, well drained
Plum, American	spring		moist, well drained
Alder, Smooth	spring	intermediate	moist, well to poorly drained
Hazelnut, American	spring		moist to dry, well drained
Blueberry	spring		moist to dry, well drained
Chinkapin, Allegheny	late spring		dry, well drained
Indigobush	late spring	intolerant	moist to mod. well drained
Sumac, Fragrant	late spring	intermediate	dry, well drained
Blue Wild Indigo ¹	late spring	intolerant	moist to dry, well drained
Beautyberry, American	summer		moist to mod. well drained
Elderberry	summer		moist, poorly drained
Sumac, Winged	summer	intolerant	dry, well drained



CONSERVATION STEWARDSHIP PROGRAM

Sumac, Staghorn	summer	tolerant	dry, well drained
Sumac, Smooth	summer	intolerant	dry, well drained
Viburnum, Mapleleaf	summer	tolerant	moist to dry, well drained
<i>* Recommended to select ≥ 3 species, only 1 sumac species per planting mixture.</i>			
<i>*Dry = drier than a well-drained soil; tending toward droughty.</i>			
<i>*Moist=wetter than moderately well drained soils; good moisture holding capacity but generally not hydric.</i>			
<i>*Wet=wetter than a well-drained soil; may be a hydric soil due to persistent high-water table.</i>			
<i>*Well drained = good drainage but not rapid; typically, a loamy soil with adequate plant available water.</i>			
<i>*Poorly drained = generally a hydric soil due to persistent high-water table.</i>			
<i>¹Blue wild indigo is a forb but provides shrubby structure and may be used as a shrub.</i>			

TREE / SHRUB SPACING TABLE		
Spacing	No. per acre	Common Uses
8' x 8'	681	Shrub plantings for wildlife. Conifer plantings for timber product.
8' x 10'	544	
10' x 10'	436	
10' x 12'	363	Riparian buffers. Hardwoods planted for sawtimber.
12' x 12'	302	Riparian buffers. Hardwoods planted for sawtimber. Wildlife tree plantings.
15' x 15'	194	Some hardwoods planted for sawtimber. Some wildlife tree plantings.
17' x 17'	150	Low density: high quality
20' x 20'	109	Mass production of some hardwoods.



**TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY**

**CONSERVATION
STEWARDSHIP
PROGRAM**

E395137X

Stream habitat improvement through placement of woody biomass

Conservation Practice 395: Stream Habitat Improvement and Management

Additional Criteria for TN

- Follow recommended Plan approved by NRCS Area Biologist or NRCS Partner Biologist.
- Follow 395 Standard.
- May Require Engineering assistance.



TENNESSEE SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E484106Z

Mulching to improve soil health

Conservation Practice 484: Mulching

Additional Criteria for TN

- In addition to the criteria specified in the National Job Sheet E484106Z the following additional criteria apply in TN:
- For C:N ratios below 30:1, refer to the cover crop information below or use the Green Cover SmartMix Legacy Calculator at <https://smartmix.greencoverseed.com/>
- Example Cover Crop Mixes with C:N ratios below that 30:1 are:

Crop Mixtures	Seeding Rate (lb/ac)		Planting Date	C:N Ratio at Vegetative Stage
	Drilled	Broadcast		
<u>Simple Cover Crop Mix 2:</u>				
Wheat	25	32	Aug. 15 to Oct. 15	25
Crimson Clover	5	7		
Austrian Winter Peas	14	18		
Hairy Vetch	5	7		
Radish	1	1		



CONSERVATION STEWARDSHIP PROGRAM

Crop Mixtures	Seeding Rate (lb/ac)		Planting Date	C:N Ratio at Vegetative Stage
	Drilled	Broadcast		
<u>Multi Species Cover Crop Mix (Warm Season)</u> Double crop soybean producers could plant a warm season cover crop to achieve 3 consecutive years of cover crops. This option is available to all producers.				
Buckwheat (optional)	1	1	April 20 to July 1	21
Sunflowers (optional)	1	1		
Sudangrass	10	13		
Millet	4	5		
Cowpeas	11	14		
Soybeans	11	14		
Turnips	1.5	1.5		
Sun hemp	5	7		



TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION
STEWARDSHIP
PROGRAM

E511137Z1

Harvest of crops (hay or small grains) using conservation measures that allow desired species to flush or escape

Conservation Practice 511: Forage Harvest Management

Additional Criteria for TN

- In addition to the criteria specified in the National job sheet E511137Z1 the following additional criteria apply in TN:
- **Primary Nesting Season:**
 - April 15th – August 15th
- Biologist must review plan to determine if adequate habitat needs will be provided to wildlife species of concern.
- Increase residual forage heights at mowing to state specified minimum heights for the targeted species on all hayed acres:
 - Introduced Grasses = 8 inches minimum
 - Native Warm Season Grasses = 10 inches minimum

E511137Z1 - Harvest of crops (hay or small grains) using conservation measures that allow desired species to flush or escape	December 2017	Page 1
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**TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY**

**CONSERVATION
STEWARDSHIP
PROGRAM**

E511137Z2

**Harvest of crops (hay or small grains) using conservation
measures that allow desired species to flush or escape**

Conservation Practice 511: Forage Harvest Management

Additional Criteria for TN

- In addition to the criteria specified in the National job sheet E511137Z1 the following additional criteria apply in TN:
- **Primary Nesting Season:**
 - April 15th – August 15th
- Biologist must review plan to determine if adequate habitat needs will be provided to wildlife species of concern.
- Increase residual forage heights at mowing to state specified minimum heights for the targeted species on all hayed acres:
 - Introduced Grasses = 8 inches minimum
 - Native Warm Season Grasses = 10 inches minimum

E511137Z2 - Forage harvest management that helps maintain or improve wildlife habitat (cover and shelter)	December 2017	Page 1
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**TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY**

**CONSERVATION
STEWARDSHIP
PROGRAM**

E511139Z2

Forage harvest management that helps maintain wildlife habitat continuity (space)

Conservation Practice 511: Forage Harvest Management

Additional Criteria for TN

- In addition to the criteria specified in the National job sheet E511137Z1 the following additional criteria apply in TN:
- **Primary Nesting Season:**
 - April 15th – August 15th
- Biologist must review plan to determine if adequate habitat needs will be provided to wildlife species of concern.
- Increase residual forage heights at mowing to state specified minimum heights for the targeted species on all hayed acres:
 - Introduced Grasses = 8 inches minimum
 - Native Warm Season Grasses = 10 inches minimum

E511139Z2 – Forage harvest management that helps maintain wildlife habitat continuity (space)	December 2017	Page 1
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**TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY**

**CONSERVATION
STEWARDSHIP
PROGRAM**

E512101Z1

Cropland conversion to grass-based agriculture to reduce water erosion

Conservation Practice 512: Forage and Biomass Planting

Additional Criteria for TN

- In addition to the criteria specified in the National job sheet E512101Z1 the following additional criteria apply in TN:
- For state specific planting rates, methods, and dates refer to Conservation Practice Standard (Code 512) Forage and Biomass Planting and the University of Tennessee Guide sheet PB 378: *Forage & Field Crop Seeding Guide for Tennessee*.
- Exclude livestock until growth is twice the minimum grazing height. See following table for grazing height information.



CONSERVATION STEWARDSHIP PROGRAM

Forage Species*	Height to begin grazing	Height to terminate grazing (Residual Ht.)**	Recovery Time (Days)
Tall Fescue Timothy Annual Ryegrass Crabgrass Old World Bluestem	8"	(2) 3"	14 - 45
Tall Fescue (endophyte free) Orchard grass Sericea Lespedeza	8"	(3) 4"	14 - 45
Wheat Rye Oats	8"	4"	14 - 45
Alfalfa	bud stage	2"	24 - 32
Pearl Millet	12"	6"	14 - 30
Sorghum x Sudangrass hybrids	18"	(6) 8"	14 - 30
Johnson grass Native Warm Season Grasses (NWSG)	22"	(8) 10"	30 - 50
Common Bermudagrass hybrid Bermudagrass	8" 8"	2" 3"	14 - 45

*Alfalfa, bermudagrass, old world bluestem, and sericea should be at least 8 inches tall prior to the first frost. Johnsongrass and NWSG should be at least 12" tall prior to first frost. Providing other forages with a recovery period prior to frost is also beneficial for forage vigor.

**Minimum grazing heights listed in () may be used when rotation grazing is practiced and the minimum or higher recovery height to begin grazing is practiced.



**TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY**

**CONSERVATION
STEWARDSHIP
PROGRAM**

E512101Z2

**Forage and biomass planting for water erosion control to
improve soil health**

Conservation Practice 512: Forage and Biomass Planting

Additional Criteria for TN

- In addition to the criteria specified in the National job sheet E512101Z2 the following additional criteria apply in TN:
- For state specific planting rates, methods, and dates refer to Conservation Practice Standard (Code 512) Forage and Biomass Planting and the University of Tennessee Guide sheet PB 378: *Forage & Field Crop Seeding Guide for Tennessee*.
- Exclude livestock until growth is twice the minimum grazing height. See following table for grazing height information.

E512101Z2 - Forage and biomass planting for water erosion control to improve soil health	December 2017	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

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**TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY**

**CONSERVATION
STEWARDSHIP
PROGRAM**

E512106Z1

Cropland conversion to grass-based agriculture for soil organic matter improvement

Conservation Practice 512: Forage and Biomass Planting

Additional Criteria for TN

- In addition to the criteria specified in the National job sheet E512106Z1 the following additional criteria apply in TN:
- For state specific planting rates, methods, and dates refer to Conservation Practice Standard (Code 512) Forage and Biomass Planting and the University of Tennessee Guide sheet PB 378: *Forage & Field Crop Seeding Guide for Tennessee*.
- Exclude livestock until growth is twice the minimum grazing height. See following table for grazing height information.

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CONSERVATION STEWARDSHIP PROGRAM

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**TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY**

**CONSERVATION
STEWARDSHIP
PROGRAM**

E512106Z2

Forage plantings that can help increase organic matter in depleted soils

Conservation Practice 512: Forage and Biomass Planting

Additional Criteria for TN

- In addition to the criteria specified in the National job sheet E512106Z2 the following additional criteria apply in TN:
- For state specific planting rates, methods, and dates refer to Conservation Practice Standard (Code 512) Forage and Biomass Planting and the University of Tennessee Guide sheet PB 378: *Forage & Field Crop Seeding Guide for Tennessee*.
- Exclude livestock until growth is twice the minimum grazing height. See following table for grazing height information.



CONSERVATION STEWARDSHIP PROGRAM

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TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION
STEWARDSHIP
PROGRAM

E512132Z1

Forage and biomass planting that produces feedstock for
biofuels or energy production

Conservation Practice 512: Forage and Biomass Planting

Additional Criteria for TN

- In addition to the criteria specified in the National job sheet E512132Z1 the following additional criteria apply in TN:
- For state specific planting rates, methods, and dates refer to Conservation Practice Standard (Code 512) Forage and Biomass Planting and the University of Tennessee Guide sheet PB 378: *Forage & Field Crop Seeding Guide for Tennessee*.
- Exclude livestock until growth is twice the minimum grazing height. See following table for grazing height information.

E512132Z1 – Forage and biomass planting that produces feedstock for biofuels or energy production	December 2017	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

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TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION
STEWARDSHIP
PROGRAM

E512132Z2

Native grasses or legumes in forage base to improve plant productivity and health

Conservation Practice 512: Forage and Biomass Planting

Additional Criteria for TN

- In addition to the criteria specified in the National job sheet E512132Z2 the following additional criteria apply in TN:
- For state specific planting rates, methods, and dates refer to Conservation Practice Standard (Code 512) Forage and Biomass Planting and the University of Tennessee Guide sheet PB 378: *Forage & Field Crop Seeding Guide for Tennessee*.
- Exclude livestock until growth is twice the minimum grazing height. See following table for grazing height information.

E512132Z2 – Native grasses or legumes in forage base to improve plant productivity and health	December 2017	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

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TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION
STEWARDSHIP
PROGRAM

E512133Z1

Native grasses or legumes in forage base to improve plant community structure and composition

Conservation Practice 512: Forage and Biomass Planting

Additional Criteria for TN

- In addition to the criteria specified in the National job sheet E512133Z1 the following additional criteria apply in TN:
- For state specific planting rates, methods, and dates refer to Conservation Practice Standard (Code 512) Forage and Biomass Planting and the University of Tennessee Guide sheet PB 378: *Forage & Field Crop Seeding Guide for Tennessee*.
- Exclude livestock until growth is twice the minimum grazing height. See following table for grazing height information.

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CONSERVATION STEWARDSHIP PROGRAM

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**Minimum grazing heights listed in () may be used when rotation grazing is practiced and the minimum or higher recovery height to begin grazing is practiced.



TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION
STEWARDSHIP
PROGRAM

E512133Z2

Forage plantings that enhance bird habitat (structure and composition)

Conservation Practice 512: Forage and Biomass Planting

Additional Criteria for TN

- In addition to the criteria specified in the National job sheet E512133Z2 the following additional criteria apply in TN:
- **Follow recommended mixture approved by NRCS Area Biologist or NRCS Partner Biologist or from the pre-approved list (if provided).**
 - For the state level developed lists of plants suitable for bird habitat, refer to the Wildlife Habitat Plantings Site Suitability Recommendations for USDA-NRCS Tennessee. Additional species may be approved by a NRCS Area or Partner Biologist.
 - Biologist to provide Grazing heights to be maintained or Forage harvest heights to be maintained based on bird species needs.



**TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY**

**CONSERVATION
STEWARDSHIP
PROGRAM**

E512136Z1

Establish pollinator and/or beneficial insect habitat

Conservation Practice 512: Forage and Biomass Planting

Additional Criteria for TN

- In addition to the criteria specified in the National job sheet E512136Z1 the following additional criteria apply in TN:
- For state specific planting rates, methods, and dates refer to Conservation Practice Standard (Code 512) Forage and Biomass Planting and the University of Tennessee Guide sheet PB 378: *Forage & Field Crop Seeding Guide for Tennessee*.
Or follow recommendation from NRCS or partner Biologist to meet specific need of species of concern.
- Exclude livestock until growth is twice the minimum grazing height. See following table for grazing height information.



CONSERVATION STEWARDSHIP PROGRAM

Forage Species*	Height to begin grazing	Height to terminate grazing (Residual Ht.)**	Recovery Time (Days)
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**Minimum grazing heights listed in () may be used when rotation grazing is practiced and the minimum or higher recovery height to begin grazing is practiced.



CONSERVATION STEWARDSHIP PROGRAM

BENEFICIALS

- Beneficial Insects:

- Step 1. Target Pest and Associated Beneficial Insect: For specific information on beneficial insects, target insects controlled, and plants for attracting beneficial insects, refer to the ATTRA publication *Farm Scaping to Enhance Biological Control*, Appendix B at: <http://www.attra.org/attra-pub/farmscape.html>.

- Step 2. Select Beneficial Insect and Plant Species from the table Plant Species to Formulate Mixtures at the end of the supplement. Mixtures should be designed to provide blooming plants attractive to predacious insects that would feed on pest insects in the cash crop. The table below provides common flowering plant materials used in integrated pest management. **Mixtures should consist of at least 1-2 plant species for each blooming period (Spring, Summer, Fall) within the cropping season of the target crop. Plantings should consist of diversity of plants with at least 3-6 species in the mix.**

- Beneficial Insects for Pest Management References:

ATTRA publication *FarmScaping to Enhance Biological Control*;
<http://www.attra.org/attra-pub/farmscape.html>

For specific information on beneficial insects (Arthropods) and their prey, refer to UT Extension publication W127

Common Beneficial Arthropods Found in Field Crops;
<http://www.utextension.utk.edu/publications/wfiles/W127.pdf>

If habitat is part of an organic farming operation, only materials allowed according to the USDA National Organic Program’s National List of Allowed and Prohibited Substances may be used. Refer to:

<http://www.ams.usda.gov/AMSV1.0/ams.fetchTemplateData.do?template=TemplateN&navID=NationalListLinkNOPNationalOrganicProgramHome&rightNav1=NationalListLinkNOPNationalOrganicProgramHome&topNav=&leftNav=&page=NOPNationalList&resultType=7acct=nopgeninfo>

E512136Z1 - Establish pollinator and/or beneficial insect habitat	December 2017	Page 3
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CONSERVATION STEWARDSHIP PROGRAM

Pollinator and Beneficial Species Plantings Site Suitability Recommendations for USDA-NRCS Tennessee

Revised: 3/15/18

A site-specific and species-specific wildlife habitat mixture is preferred for all situations. This guidance document is intended to assist NRCS conservation planners address resource concerns and limiting habitat factors identified in the TN NRCS Wildlife Habitat Evaluation Guide (WHEG). General native grass and pollinator habitat mixes are not noted in this document. **Contact a NRCS Biologist or NRCS Partner Biologist for assistance with developing any mixes.**

Financially assisted participants are required to follow specific program guidelines for vegetation establishment; refer to program specific requirements (i.e. Practice Standard, Requirement Sheet, Enhancement Criteria, TN Supplemental Guidance, etc. as applicable by program year).

NATIVE BUNCH GRASS		
Seeding Dates: December 1 – June 1		
Species	Height	Growth Conditions
Big bluestem	4' – 10'	Warm season, perennial, full sun, dry to moist sites
Little bluestem	2' – 4'	Warm season, perennial, full sun, dry to moist sites
Indiangrass	3' – 6'	Warm season, perennial, full sun, dry to moist sites
Sideoats grama	1' - 3'	Warm season, perennial, full sun, dry to moist sites
Switchgrass	3' – 7'	Warm season, perennial, full sun, dry to wet sites
Eastern gammagrass	4' – 8'	Warm season, perennial, full sun to partial shade, dry to wet sites
Virginia Wild Rye	2 – 4'	Cool season, perennial, partial shade, moist sites
<i>* Native grass seeding rates are based on Pure Live Seed (PLS) per acre instead of total weight.</i>		
<i>* Diverse mixes are encouraged to include native forbs per a biologist's recommendation.</i>		
<i>*Proper planting depth and site prep. herbicide is critical to successful establishment. See reference materials or contact biologist for guidance.</i>		



CONSERVATION STEWARDSHIP PROGRAM

FORBS_Pollinator		
Seeding Dates: December 1 – June 1		
Species & Lifespan*	Bloom Period & Color*	Site Conditions Range*
Lanceleaf coreopsis (P)	spring, mid-summer (Y)	moist to dry, full sun
Purple prairieclover (P)	spring, mid-summer (Pi)	moist to dry, full sun
Illinois bundleflower (P)	spring, mid-summer (W)	dry to wet, full sun
Butterfly milkweed (P)	late spring, summer (O)	moist to dry, full sun
Common Milkweed (P)	late spring, summer (Pi)	moist to dry, full sun
Blue wild indigo (P)	late spring, summer (Pu)	moist to dry, full sun
Pale purple coneflower (P)	late spring, summer (Pu)	moist to dry, partial shade
Purple coneflower (P)	late spring, summer, fall (Pu)	dry to wet, partial shade
False sunflower (P)	late spring, summer, fall (Y)	dry to wet, full sun
Gray-headed coneflower (P)	late spring, summer, fall (Y)	moist to dry, full sun
Black-eyed susan (B)	late spring, summer, fall (Y)	moist to dry, full sun
Partridge pea (A)	summer, fall (Y)	moist to dry, full sun
Cardinal Flower (P)	summer, fall (R)	moist to wet, partial shade
Tick-trefoil (Desmodium sp.) (P)	summer, fall (Pi)	moist to dry, partial shade
Maximillian sunflower (P)	summer, fall (Y)	dry to wet, full sun
Mexican hat (P)	summer, fall (Y)	moist to dry, full sun
Rigid goldenrod (P)	late summer, fall (Y)	moist to dry, full sun
<i>*Lifespan: (A)=Annual, (B)=Biennial, (P)=Perennial</i>		
<i>*Bloom color: (Y)=Yellow, (R)=Red, (O)=Orange, (W)=White, (Pi)=Pink, (Pu)=Purple</i>		
<i>*Dry = drier than a well-drained soil; tending toward droughty.</i>		
<i>*Moist = wetter than moderately well drained soils; good moisture holding capacity but generally not hydric.</i>		
<i>*Wet = wetter than a well-drained soil; may be a hydric soil due to persistent high-water table.</i>		



CONSERVATION STEWARDSHIP PROGRAM

Beneficial Species List

Select Beneficial Insect and Plant Species from the following table: PLANT SPECIES TO FORMULATE MIXTURES

Mixtures should be designed to provide blooming plants attractive to predacious insects that would feed on pest insects in the cash crop. The table below provides common flowering plant materials used in integrated pest management. **Mixtures should consist of at least 1-2 plant species for each blooming period (Spring, Summer, Fall) within the cropping season of the target crop. Plantings should consist of a diversity of plants with at least 3-6 species in the mix.**

Plant Species (A or P)*	Peak Bloom Period	Seeding Rate** Lb/Ac	Seeding Date***	Common Beneficial Insects	Trap Crop (Y or blank) (crop:pest insect controlled)
Alfalfa (P)	May	7 – 20	CS fall or spring	Damsel bug, minute pirate bug	Y
Buckwheat (A)	21 days after planting	35	WS	Braconid wasp, hover flies, tachinid flies, lacewings, ladybug, chalcid wasp, minute pirate bug	Y (Truck Crops; aphids)
Butterfly weed (P)	July	2	WS	Ladybug	
Clover, white (P)	June	1-2	CS fall or spring	Aphid parasites, braconid wasp, ground beetle, chalcid wasp	
Clover, crimson (A)	May	15 - 20	CS fall or spring	Ladybug, minute pirate bug	
Clover, berseem (A)	June	15 - 20	CS spring	Big eyed bug	
Coreopsis, lanceleaf (P)	July	2	WS	Lacewing, ladybug, hover fly, white fly parasite wasp	
Corn (A)	July	13 - 100	WS	Minute pirate bug, lacewing	Y
Cowpea (A)	July	75	WS	Braconid wasp, chalcid wasp	Y



CONSERVATION STEWARDSHIP PROGRAM

Goldenrod, Rigid (P)	September	0.5	WS	Damsel bug, lacewing, ladybug, minute pirate bug, spined soldier bug, tachinid fly, white fly parasite wasp	
Goldenrod, showy (P)	September	0.25	WS	Damsel bug, lacewing, ladybug, minute pirate bug, spined soldier bug, tachinid fly, white fly parasite wasp	
Rye, cereal (A)	May	30 - 100	CS fall or spring	Ladybug	Y
Sorghum, grain (A)		10 - 30	WS		Y
Sunflower, Ashy (P)	August	2	WS	Braconid wasp, damsel bug, lacewing, ladybug, minute pirate bug, spined soldier bug, hover fly, white fly wasp	
Sunflower, Maximilian (P)	August	1	WS	Braconid wasp, damsel bug, lacewing, ladybug, minute pirate bug, spined soldier bug, hover fly, white fly wasp	
Sunflower, native (P)	August	10	WS	Braconid wasp, damsel bug, lacewing, ladybug, minute pirate bug, spined soldier bug, hover fly, white fly wasp	
Vetch, hairy (A)	May	7 - 20	CS fall or spring	Braconid wasp, minute pirate bug, chalcid wasp	
Yarrow, common (P)	July	2	WS	Braconid wasp, chalcid wasp, damsel bug, ladybug, minute pirate bug, spined soldier bug, hover fly, white fly wasp	



**TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY**

**CONSERVATION
STEWARDSHIP
PROGRAM**

E512136Z2

Native grasses or legumes in forage base to provide wildlife food

Conservation Practice 512: Forage and Biomass Planting

Additional Criteria for TN

- In addition to the criteria specified in the National job sheet E512136Z2 the following additional criteria apply in TN:
- For state specific planting rates, methods, and dates refer to Conservation Practice Standard (Code 512) Forage and Biomass Planting and the University of Tennessee Guidesheet PB 378: *Forage & Field Crop Seeding Guide For Tennessee*.
- Exclude livestock until growth is twice the minimum grazing height. See following table for grazing height information.



CONSERVATION STEWARDSHIP PROGRAM

Forage Species*	Height to begin grazing	Height to terminate grazing (Residual Ht.)**	Recovery Time (Days)
Tall Fescue Timothy Annual Ryegrass Crabgrass Old World Bluestem	8"	(2) 3"	14 - 45
Tall Fescue (endophyte free) Orchardgrass Sericea Lespedeza	8"	(3) 4"	14 - 45
Wheat Rye Oats	8"	4"	14 - 45
Alfalfa	bud stage	2"	24 - 32
Pearl Millet	12"	6"	14 - 30
Sorghum x Sudangrass hybrids	18"	(6) 8"	14 - 30
Johnsongrass Native Warm Season Grasses (NWSG)	22"	(8) 10"	30 - 50
Common Bermudagrass hybrid Bermudagrass	8" 8"	2" 3"	14 - 45

*Alfalfa, bermudagrass, old world bluestem, and sericea should be at least 8 inches tall prior to the first frost. Johnsongrass and NWSG should be at least 12" tall prior to first frost. Providing other forages with a recovery period prior to frost is also beneficial for forage vigor.

**Minimum grazing heights listed in () may be used when rotation grazing is practiced and the minimum or higher recovery height to begin grazing is practiced.



**TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY**

**CONSERVATION
STEWARDSHIP
PROGRAM**

E512137Z

Forage plantings that enhance bird habitat (cover and shelter)

Conservation Practice 512: Forage and Biomass Planting

Additional Criteria for TN

- In addition to the criteria specified in the National job sheet E512137Z the following additional criteria apply in TN:
- For state specific planting rates, methods, and dates refer to Conservation Practice Standard (Code 512) Forage and Biomass Planting and the University of Tennessee Guidesheet PB 378: *Forage & Field Crop Seeding Guide For Tennessee*.
- Exclude livestock until growth is twice the minimum grazing height. See following table for grazing height information.



CONSERVATION STEWARDSHIP PROGRAM

Forage Species*	Height to begin grazing	Height to terminate grazing (Residual Ht.)**	Recovery Time (Days)
Tall Fescue Timothy Annual Ryegrass Crabgrass Old World Bluestem	8"	(2) 3"	14 - 45
Tall Fescue (endophyte free) Orchardgrass Sericea Lespedeza	8"	(3) 4"	14 - 45
Wheat Rye Oats	8"	4"	14 - 45
Alfalfa	bud stage	2"	24 - 32
Pearl Millet	12"	6"	14 - 30
Sorghum x Sudangrass hybrids	18"	(6) 8"	14 - 30
Johnsongrass Native Warm Season Grasses (NWSG)	22"	(8) 10"	30 - 50
Common Bermudagrass hybrid Bermudagrass	8" 8"	2" 3"	14 - 45

*Alfalfa, bermudagrass, old world bluestem, and sericea should be at least 8 inches tall prior to the first frost. Johnsongrass and NWSG should be at least 12" tall prior to first frost. Providing other forages with a recovery period prior to frost is also beneficial for forage vigor.

**Minimum grazing heights listed in () may be used when rotation grazing is practiced and the minimum or higher recovery height to begin grazing is practiced.



**TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY**

**CONSERVATION
STEWARDSHIP
PROGRAM**

E528133Z2

**Grazing management for improving quantity and quality of
plant structure and composition for wildlife**

Conservation Practice 528: Prescribed Grazing Enhancements

Additional Criteria for TN

Must have a balanced Graze plan with no more than 90 days of supplemental feeding through hay.

Biologist must review plan to determine if adequate habitat needs will be provided to wildlife species of concern.

E3528133Z2 - Grazing management for improving quantity and quality of plant structure and composition for wildlife	December 2017 Page 1
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TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION
STEWARDSHIP
PROGRAM

E528137Z1

Grazing management for improving quantity and quality of cover and shelter for wildlife

Conservation Practice 528: Prescribed Grazing Enhancements

Additional Criteria for TN

Must have a balanced Graze plan with no more than 90 days of supplemental feeding through hay.

Biologist must review plan to determine if adequate habitat needs will be provided to wildlife species of concern.

E528137Z1 - Grazing management for improving quantity and quality of cover and shelter for wildlife	December 2017 Page 1
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**TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY**

**CONSERVATION
STEWARDSHIP
PROGRAM**

E528137Z2

**Incorporating wildlife refuge areas in contingency plans for
prescribed grazing for wildlife cover and shelter**

Conservation Practice 528: Prescribed Grazing Enhancements

Additional Criteria for TN

Must have a balanced Graze plan with no more than 90 days of supplemental feeding through hay.

Biologist must review plan to determine if adequate habitat needs will be provided to wildlife species of concern.



**TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY**

**CONSERVATION
STEWARDSHIP
PROGRAM**

E528138Z

**Incorporating wildlife refuge areas in contingency plans for
prescribed grazing for wildlife access to water**

Conservation Practice 580: Streambank Shoreline Protection Enhancements

Additional Criteria for TN

- Must have a balanced Graze plan with no more than 90 days of supplemental feeding thru hay.
- Biologist must review plan to determine if adequate habitat needs will be provided to wildlife species of concern.

E528138Z - Incorporating wildlife refuge areas in contingency plans for prescribed grazing for wildlife access to water	December 2017 Page 1
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TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION
STEWARDSHIP
PROGRAM

E580137Z

Stream corridor bank vegetation improvement

Conservation Practice 580: Streambank Shoreline Protection Enhancements

Additional Criteria for TN

- Follow recommended mixture approved by NRCS Area Biologist or NRCS Partner Biologist or from the pre-approved list (if provided).
- May use 390 and 391 Conservation practice standards.

**Wildlife Habitat Plantings Site Suitability Recommendations
for
USDA-NRCS Tennessee**

Revised: 10-20-2017

A site-specific and species-specific wildlife habitat mixture is preferred for all situations. This guidance document is intended to assist NRCS conservation planners address resource concerns and limiting habitat factors identified in the TN NRCS Wildlife Habitat Evaluation Guide (WHEG). General native grass and pollinator habitat mixes are not noted in this document; **contact a NRCS Biologist or NRCS Partner Biologist for assistance with site-specific mixes.**

Financially assisted participants are required to follow specific program guidelines for vegetation establishment; refer to program specific requirements (i.e. Practice Standard, Requirement Sheet, Enhancement Criteria, TN Supplemental Guidance, etc. as applicable by program year).

E580137Z -Stream corridor bank vegetation improvement	December 2017	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

NATIVE BUNCH GRASS		
Seeding Dates: December 1 – June 1		
Species	Height	Growth Conditions
Big bluestem	4' – 10'	Warm season, perennial, full sun, dry to moist sites
Little bluestem	2' – 4'	Warm season, perennial, full sun, dry to moist sites
Indiangrass	3' – 6'	Warm season, perennial, full sun, dry to moist sites
Sideoats grama	1' - 3'	Warm season, perennial, full sun, dry to moist sites
Switchgrass	3' – 7'	Warm season, perennial, full sun, dry to wet sites
Eastern gammagrass	4' – 8'	Warm season, perennial, full sun to partial shade, dry to wet sites
Virginia Wild Rye	2 – 4'	Cool season, perennial, partial shade, moist sites
<i>* Native grass seeding rates are based on Pure Live Seed (PLS) per acre instead of total weight.</i>		
<i>* Diverse mixes are encouraged to include native forbs per a biologist's recommendation.</i>		
<i>*Proper planting depth and site prep. herbicide is critical to successful establishment. See reference materials or contact biologist for guidance.</i>		



CONSERVATION STEWARDSHIP PROGRAM

FORBS		
Seeding Dates: December 1 – June 1		
Species & Lifespan*	Bloom Period & Color*	Site Conditions Range*
Lanceleaf coreopsis (P)	spring, mid-summer (Y)	moist to dry, full sun
Purple prairieclover (P)	spring, mid-summer (Pi)	moist to dry, full sun
Illinois bundleflower (P)	spring, mid-summer (W)	dry to wet, full sun
Butterfly milkweed (P)	late spring, summer (O)	moist to dry, full sun
Common Milkweed (P)	late spring, summer (Pi)	moist to dry, full sun
Blue wild indigo (P)	late spring, summer (Pu)	moist to dry, full sun
Pale purple coneflower (P)	late spring, summer (Pu)	moist to dry, partial shade
Purple coneflower (P)	late spring, summer, fall (Pu)	dry to wet, partial shade
False sunflower (P)	late spring, summer, fall (Y)	dry to wet, full sun
Gray-headed coneflower (P)	late spring, summer, fall (Y)	moist to dry, full sun
Black-eyed susan (B)	late spring, summer, fall (Y)	moist to dry, full sun
Partridge pea (A)	summer, fall (Y)	moist to dry, full sun
Cardinal Flower (P)	summer, fall (R)	moist to wet, partial shade
Tick-trefoil (Desmodium sp.) (P)	summer, fall (Pi)	moist to dry, partial shade
Maximillian sunflower (P)	summer, fall (Y)	dry to wet, full sun
Mexican hat (P)	summer, fall (Y)	moist to dry, full sun
Rigid goldenrod (P)	late summer, fall (Y)	moist to dry, full sun
<i>*Lifespan: (A)=Annual, (B)=Biennial, (P)=Perennial</i>		
<i>*Bloom color: (Y)=Yellow, (R)=Red, (O)=Orange, (W)=White, (Pi)=Pink, (Pu)=Purple</i>		
<i>*Dry = drier than a well-drained soil; tending toward droughty.</i>		
<i>*Moist = wetter than moderately well drained soils; good moisture holding capacity but generally not hydric.</i>		
<i>*Wet = wetter than a well-drained soil; may be a hydric soil due to persistent high water table.</i>		



CONSERVATION STEWARDSHIP PROGRAM

TREES			
Planting Dates: November 1 – April 15 (November 15 – April 1, West TN Only)			
Species	Group	Shade Tolerance	Site Condition Range*
Bur Oak	White Oak		moist to dry, well drained, fire tolerant
Swamp White Oak	White Oak		moist to wet, poorly drained
Chestnut Oak	White Oak		moist to dry, well drained
Post Oak	White Oak		moist to dry, well drained, fire tolerant
Overcup Oak	White Oak		moist to wet, poorly drained
White Oak	White Oak		moist to dry, well drained
Shingle Oak	Red Oak		moist to dry, well drained
Black Oak	Red Oak		moist to dry, well drained
Pin Oak	Red Oak		dry to wet, poorly drained
Southern Red Oak	Red Oak		moist to dry, well drained
Nuttall Oak	Red Oak		moist to wet, poorly drained
Willow Oak	Red Oak		moist to wet, well drained
Water Oak	Red Oak		moist to wet, poorly drained
Laurel Oak	Red Oak		moist to wet, well drained
Shumard Oak	Red Oak		most to wet, poorly drained
Cherrybark Oak	Red Oak		moist, well drained
Chinkapin Oak	Red Oak		moist to dry, well drained
Hickory, Shagbark	Other Hard Mast		moist to dry, well drained
Hickory, Shellbark	Other Hard Mast		moist to wet, well drained
Hickory, Mockernut	Other Hard Mast		moist to dry, well drained
Pecan, Native Sweet	Other Hard Mast	intolerant	moist to dry, well drained
American Beech	Other Hard Mast	tolerant	moist, well drained
Chestnut, American (hybrid)	Other Hard Mast	intermediate	moist to dry, well drained
Flowering Dogwood	Soft Mast	tolerant	moist, well drained
Black Cherry	Soft Mast	intolerant	moist to dry, well drained
Blackgum	Soft Mast	tolerant	moist to dry, well drained, fire tolerant



CONSERVATION STEWARDSHIP PROGRAM

Washington Hawthorn	Soft Mast		moist to dry, well drained
Eastern Redbud	Soft Mast		moist to dry, well drained
Persimmon	Soft Mast	intermediate	dry to wet, well to poorly drained
Mulberry, Red	Soft Mast	intermediate	moist, well drained
Pawpaw	Soft Mast	tolerant	moist, well drained
Shortleaf Pine	Pine	intolerant	moist to dry, well drained, fire tolerant
White Pine	Pine	intermediate	moist to dry, well drained
Virginia Pine	Pine	intolerant	moist to dry, well drained
* Recommended to select ≥ 3 species, and at least one from red oak and white oak groups.			
*Dry = drier than a well-drained soil; tending toward droughty.			
*Moist=wetter than moderately well drained soils; good moisture holding capacity but generally not hydric.			
*Wet = wetter than a well-drained soil; may be a hydric soil due to persistent high water table.			
*Well drained = good drainage but not rapid; typically a loamy soil with adequate plant available water.			
*Poorly drained = generally a hydric soil due to persistent high water table.			

SHRUBS			
Planting Dates: November 1 – April 15 (November 15 – April 1, West TN Only)			
Species	Bloom Period	Shade Tolerance	Site Condition Range*
Crabapple	spring	intolerant	moist, well drained
Dogwood, Silky	spring		moist, well to poorly drained
Plum, Chickasaw	spring		dry, well drained
Plum, American	spring		moist, well drained
Alder, Smooth	spring	intermediate	moist, well to poorly drained
Hazelnut, American	spring		moist to dry, well drained
Blueberry	spring		moist to dry, well drained
Chinkapin, Allegheny	late spring		dry, well drained
Indigobush	late spring	intolerant	moist to mod. well drained
Sumac, Fragrant	late spring	intermediate	dry, well drained
Blue Wild Indigo ¹	late spring	intolerant	moist to dry, well drained



CONSERVATION STEWARDSHIP PROGRAM

Beautyberry, American	summer		moist to mod. well drained
Elderberry	summer		moist, poorly drained
Sumac, Winged	summer	intolerant	dry, well drained
Sumac, Staghorn	summer	tolerant	dry, well drained
Sumac, Smooth	summer	intolerant	dry, well drained
Viburnum, Mapleleaf	summer	tolerant	moist to dry, well drained
<i>* Recommended to select ≥ 3 species, only 1 sumac species per planting mixture.</i>			
<i>*Dry = drier than a well-drained soil; tending toward droughty.</i>			
<i>*Moist=wetter than moderately well drained soils; good moisture holding capacity but generally not hydric.</i>			
<i>*Wet=wetter than a well-drained soil; may be a hydric soil due to persistent high water table.</i>			
<i>*Well drained = good drainage but not rapid; typically a loamy soil with adequate plant available water.</i>			
<i>*Poorly drained = generally a hydric soil due to persistent high water table.</i>			
<i>¹Blue wild indigo is a forb but provides shrubby structure and may be used as a shrub.</i>			

TREE / SHRUB SPACING TABLE		
Spacing	No. per acre	Common Uses
8' x 8'	681	Shrub plantings for wildlife. Conifer plantings for timber product.
8' x 10'	544	
10' x 10'	436	
10' x 12'	363	Riparian buffers. Hardwoods planted for sawtimber.
12' x 12'	302	Riparian buffers. Hardwoods planted for sawtimber. Wildlife tree plantings.
15' x 15'	194	Some hardwoods planted for sawtimber. Some wildlife tree plantings.
17' x 17'	150	Low density: high quality
20' x 20'	109	Mass production of some hardwoods.



TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION
STEWARDSHIP
PROGRAM

E590118Z

Improving nutrient uptake efficiency and reducing risk of nutrient losses to surface water

Conservation Practice 590: Nutrient Management

Additional Criteria for TN

- In addition to the criteria specified in the National Job Sheet E590118Z the following additional criteria apply in TN:
- Enhanced Efficiency Fertilizer:
 - For surface applied nitrogen fertilizer (Refer to UT Publication W364):
 - Products containing N-(n-butyl)thiophosphoric Triamide (NBTP)
 - Semi permeable polymer coated urea
 - For phosphorus fertilizer:
 - None available at this time
- In-season Soil Nitrate Testing:
 - Pre-Sidedress Nitrate-N Soil Test (PSNT) for **corn production systems** refer to: <https://ag.tennessee.edu/spp/Pages/soilfertilizerpubs.aspx>
- In-season Plant Tissue Testing:
 - Reference Sufficiency Ranges for Plant Analysis in the Southern Region of the United States – Southern Cooperative Series Bulletin #394
<https://ag.tennessee.edu/spp/Documents/scsb394.pdf>



TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION
STEWARDSHIP
PROGRAM

E590119Z

Improving nutrient uptake efficiency and reducing risk of nutrient losses to groundwater

Conservation Practice 590: Nutrient Management

Additional Criteria for TN

- In addition to the criteria specified in the National Job Sheet E590119Z the following additional criteria apply in TN:
- Enhanced Efficiency Fertilizer:
 - For surface applied nitrogen fertilizer (Refer to UT Publication W364):
 - Products containing N-(n-butyl)thiophosphoric Triamide (NBTP)
 - Semi permeable polymer coated urea
 - For phosphorus fertilizer:
 - None available at this time
- In-season Soil Nitrate Testing:
 - Pre-Sidedress Nitrate-N Soil Test (PSNT) for **corn production systems** refer to: <https://ag.tennessee.edu/spp/Pages/soilfertilizerpubs.aspx>
- In-season Plant Tissue Testing:
 - Reference Sufficiency Ranges for Plant Analysis in the Southern Region of the United States – Southern Cooperative Series Bulletin #394
<https://ag.tennessee.edu/spp/Documents/scsb394.pdf>

E590119Z - Improving nutrient uptake efficiency and reducing risk of nutrient losses to groundwater	December 2017 Page 1
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TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION
STEWARDSHIP
PROGRAM

E590130Z

Improving nutrient uptake efficiency and reducing risk to air quality – emissions of greenhouse gases (GHGs)

Conservation Practice 590: Nutrient Management

Additional Criteria for TN

- In addition to the criteria specified in the National Job Sheet E590130Z the following additional criteria apply in TN:
- Enhanced Efficiency Fertilizer:
 - For surface applied nitrogen fertilizer (Refer to UT Publication W364):
 - Products containing N-(n-butyl)thiophosphoric Triamide (NBTP)
 - Semi permeable polymer coated urea
 - For phosphorus fertilizer:
 - None available at this time
- In-season Soil Nitrate Testing:
 - Pre-Sidedress Nitrate-N Soil Test (PSNT) for **corn production systems** refer to: <https://ag.tennessee.edu/spp/Pages/soilfertilizerpubs.aspx>
- In-season Plant Tissue Testing:
 - Reference Sufficiency Ranges for Plant Analysis in the Southern Region of the United States – Southern Cooperative Series Bulletin #394
<https://ag.tennessee.edu/spp/Documents/scsb394.pdf>



CONSERVATION STEWARDSHIP PROGRAM

- Use of nitrification inhibitors:
 - Nitrification inhibitors are not approved at this time due to TN climatic conditions
- Use of urease inhibitors:
 - Product containing the active ingredient N-(n-Butyl)thiophosphoric Triamide (NBTP) for use with surface applied urea containing fertilizers such as granular urea or urea ammonium nitrate. Refer to UT Publication W364.



**TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY**

**CONSERVATION
STEWARDSHIP
PROGRAM**

E612136Z

Tree/shrub planting for wildlife food

Conservation Practice 612: Tree/Shrub Establishment Enhancements

Additional Criteria for TN

- Follow recommended mixture approved by NRCS Area Biologist or NRCS Partner Biologist or from the pre-approved list (if provided).



CONSERVATION STEWARDSHIP PROGRAM

TREES			
Planting Dates: November 1 – April 15 (November 15 – April 1, West TN Only)			
Species	Group	Shade Tolerance	Site Condition Range*
Bur Oak	White Oak	intermediate	moist to dry, well drained, fire tolerant
Swamp White Oak	White Oak	intermediate	moist to wet, poorly drained
Chestnut Oak	White Oak	intermediate	moist to dry, well drained
Post Oak	White Oak	intolerant	moist to dry, well drained, fire tolerant
Overcup Oak	White Oak	intermediate	moist to wet, poorly drained
White Oak	White Oak	intermediate	moist to dry, well drained
Shingle Oak	Red Oak	intermediate	moist to dry, well drained
Black Oak	Red Oak	intermediate	moist to dry, well drained
Pin Oak	Red Oak	intolerant	dry to wet, poorly drained
Southern Red Oak	Red Oak	intolerant	moist to dry, well drained
Nuttall Oak	Red Oak	intolerant	moist to wet, poorly drained
Willow Oak	Red Oak	intermediate	moist to wet, well drained
Water Oak	Red Oak	intolerant	moist to wet, poorly drained
Laurel Oak	Red Oak	intermediate	moist to wet, well drained
Shumard Oak	Red Oak	intolerant	most to wet, poorly drained
Cherrybark Oak	Red Oak	intolerant	moist, well drained
Chinkapin Oak	Red Oak	intolerant	moist to dry, well drained
Hickory, Shagbark	Other Hard Mast	intermediate	moist to dry, well drained
Hickory, Shellbark	Other Hard Mast	intermediate	moist to wet, well drained
Hickory, Mockernut	Other Hard Mast	intermediate	moist to dry, well drained
Pecan, Native Sweet	Other Hard Mast	intolerant	moist to dry, well drained
American Beech	Other Hard Mast	tolerant	moist, well drained
Chestnut, American (hybrid)	Other Hard Mast	intermediate	moist to dry, well drained
Flowering Dogwood	Soft Mast	tolerant	moist, well drained
Black Cherry	Soft Mast	intolerant	moist to dry, well drained
Blackgum	Soft Mast	tolerant	moist to dry, well drained, fire tolerant
Washington Hawthorn	Soft Mast	intolerant	moist to dry, well drained
Eastern Redbud	Soft Mast	intolerant	moist to dry, well drained



CONSERVATION STEWARDSHIP PROGRAM

Persimmon	Soft Mast	intermediate	dry to wet, well to poorly drained
Mulberry, Red	Soft Mast	intermediate	moist, well drained
Pawpaw	Soft Mast	tolerant	moist, well drained
Shortleaf Pine	Pine	intolerant	moist to dry, well drained, fire tolerant
White Pine	Pine	intermediate	moist to dry, well drained
Virginia Pine	Pine	intolerant	moist to dry, well drained
<i>* Recommended to select ≥ 3 species, and at least one from red oak and white oak groups.</i>			
<i>*Dry = drier than a well-drained soil; tending toward droughty.</i>			
<i>*Moist=wetter than moderately well drained soils; good moisture holding capacity but generally not hydric.</i>			
<i>*Wet = wetter than a well-drained soil; may be a hydric soil due to persistent high water table.</i>			
<i>*Well drained = good drainage but not rapid; typically a loamy soil with adequate plant available water.</i>			
<i>*Poorly drained = generally a hydric soil due to persistent high water table.</i>			



CONSERVATION STEWARDSHIP PROGRAM

SHRUBS			
Planting Dates: November 1 – April 15 (November 15 – April 1, West TN Only)			
Species	Bloom Period	Shade Tolerance	Site Condition Range*
Crabapple	spring	intolerant	moist, well drained
Dogwood, Silky	spring	tolerant	moist, well to poorly drained
Plum, Chickasaw	spring	tolerant	dry, well drained
Plum, American	spring	tolerant	moist, well drained
Alder, Smooth	spring	intermediate	moist, well to poorly drained
Hazelnut, American	spring	intermediate	moist to dry, well drained
Blueberry	spring	intermediate	moist to dry, well drained
Chinkapin, Allegheny	late spring	intermediate	dry, well drained
Indigobush	late spring	intolerant	moist to mod. well drained
Sumac, Fragrant	late spring	intermediate	dry, well drained
Blue Wild Indigo ¹	late spring	intolerant	moist to dry, well drained
Beautyberry, American	summer	intermediate	moist to mod. well drained
Elderberry	summer	intermediate	moist, poorly drained
Sumac, Winged	summer	intolerant	dry, well drained
Sumac, Staghorn	summer	tolerant	dry, well drained
Sumac, Smooth	summer	intolerant	dry, well drained
Viburnum, Mapleleaf	summer	tolerant	moist to dry, well drained
* Recommended to select ≥ 3 species, only 1 sumac species per planting mixture.			
*Dry = drier than a well-drained soil; tending toward droughty.			
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**TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY**

**CONSERVATION
STEWARDSHIP
PROGRAM**

E612137Z

Tree/shrub planting for wildlife cover

Conservation Practice 612: Tree/Shrub Establishment Enhancements

Additional Criteria for TN

- Follow recommended mixture approved by NRCS Area Biologist or NRCS Partner Biologist or from the pre-approved list (if provided).



CONSERVATION STEWARDSHIP PROGRAM

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Washington Hawthorn	Soft Mast	intolerant	moist to dry, well drained
Eastern Redbud	Soft Mast	intolerant	moist to dry, well drained
Persimmon	Soft Mast	intermediate	dry to wet, well to poorly drained



CONSERVATION STEWARDSHIP PROGRAM

TREES

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CONSERVATION STEWARDSHIP PROGRAM

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Hazelnut, American	spring	intermediate	moist to dry, well drained
Blueberry	spring	intermediate	moist to dry, well drained
Chinkapin, Allegheny	late spring	intermediate	dry, well drained
Indigobush	late spring	intolerant	moist to mod. well drained
Sumac, Fragrant	late spring	intermediate	dry, well drained
Blue Wild Indigo ¹	late spring	intolerant	moist to dry, well drained
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**TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY**

**CONSERVATION
STEWARDSHIP
PROGRAM**

E666133Z1

Creating structural diversity with patch openings

Conservation Practice 666: Forest Stand Improvement

Additional Criteria for TN

- Forest openings limited to one acre in size each.
- Forest openings should be no closer than 300ft from another opening.
- Forested openings can be created on no more than 50% of eligible forested acres.

Targeted Species for regeneration include:

TREES:

WHITE OAK GROUP: Bur, Shingle, Swamp chestnut, Swamp white, Chestnut, Post, Overcup,

RED OAK GROUP: Black, Northern red, Willow, Pin, Southern red, Nuttall, Water, Laurel, Shumard, Cherrybark, Chinkapin

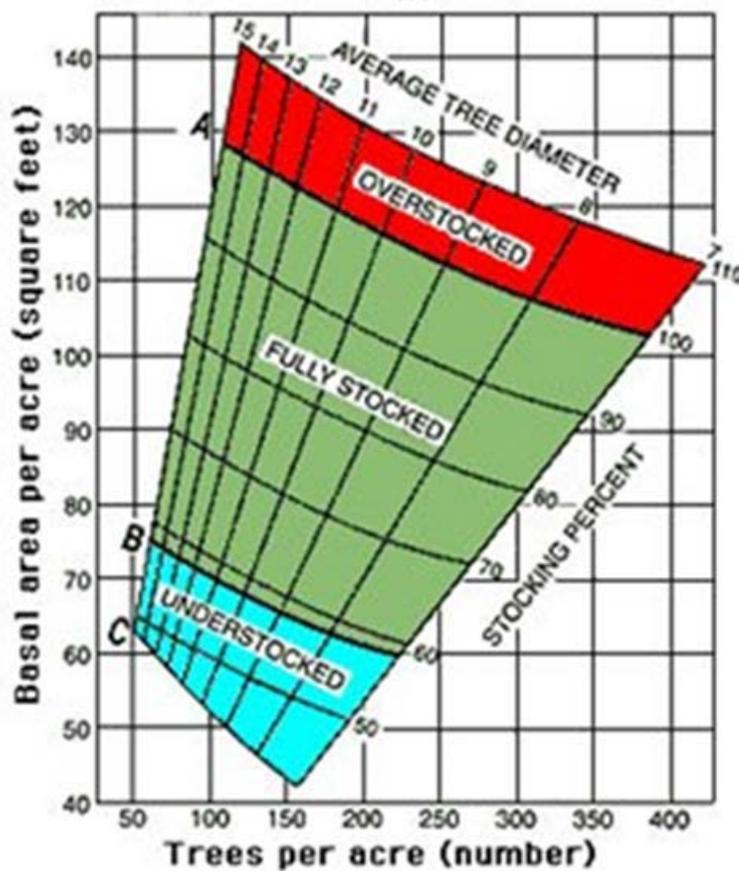
SOFT MAST TREES: Flowering dogwood, Black cherry, Blackgum, Persimmon, Mulberry, Pawpaw

PINE --Shortleaf Pine

Other trees or shrubs may be approved by the NRCS Area Biologist.

CONSERVATION STEWARDSHIP PROGRAM

Figure 1: Stocking Chart *showing tree size and density scales indicating when forests are overstocked (too crowded), fully stocked (providing good growth), and understocked (trees do not fully utilize the site). Stocking guides were developed by Gingrich (1967).*





DESIRED STOCKING HARDWOOD

Stand Diameter (DBH)	Spacing (feet)	Basal Area (square feet)	Trees per acre
6	13	55	258
8	16	60	170
10	19	70	121
12	22	70	90
14	25	80	70
16	27	80	60

DESIRED STOCKING PINE

Stand Diameter (DBH)	Spacing (feet)	Basal Area (square feet)	Trees per acre
6	12	60	304
8	14	80	222
10	16	90	170
12	18	100	135
14	20	115	109
16	22	125	90



TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION
STEWARDSHIP
PROGRAM

E666136Z3

Create patch openings to enhance wildlife food sources and availability

Conservation Practice 666: Forest Stand Improvement

Additional Criteria for TN

- Forest openings limited to one acre in size each.
- Forest openings should be no closer than 300ft from another opening.
- Forested openings can be created on no more than 30% of eligible forested acres.

Targeted Species for regeneration include:

TREES:

WHITE OAK GROUP: Bur, Shingle, Swamp chestnut, Swamp white, Chestnut, Post, Overcup,

RED OAK GROUP: Black, Northern red, Willow, Pin, Southern red, Nuttall, Water, Laurel, Shumard, Cherrybark, Chinkapin

SOFT MAST TREES: Flowering dogwood, Black cherry, Blackgum, Persimmon, Mulberry, Pawpaw

PINE --Shortleaf Pine

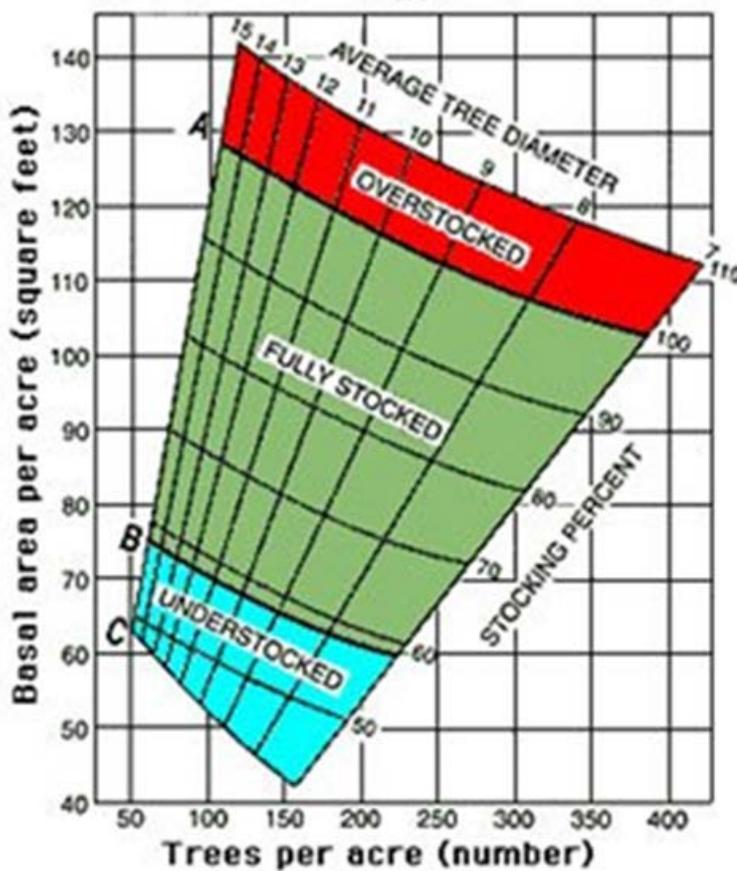
Other trees or shrubs may be approved by the NRCS Area Biologist.

E666136Z3 – Create patch openings to enhance wildlife food sources and availability.	December 2017	Page 1
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CONSERVATION STEWARDSHIP PROGRAM

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DESIRED STOCKING HARDWOOD

Stand Diameter (DBH)	Spacing (feet)	Basal Area (square feet)	Trees per acre
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TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION
STEWARDSHIP
PROGRAM

E666137Z2

Summer roosting habitat for native forest-dwelling bat species

Conservation Practice 666: Forest Stand Improvement

Additional Criteria for TN

Snag Creation (per acre)

Snags and Woody Residue size classes	Estimated Snags/Den Trees per Acre	Desired Snags/Den Trees per Acre	# of Snags/Den Trees per Acre to be Created
Snags 6-10 inch diameter at breast height.		2 or more	
Snags 10-20 inch diameter at breast height		2 or more	

- Minimum average number – 4 per acre.
- Minimum tree size 6 inch DBH.
- Canopy trees preferable, but at least 20 feet tall.
- Snag trees should be as evenly distributed throughout the stand as possible.



**TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY**

E666137Z3

**CONSERVATION
STEWARDSHIP
PROGRAM**

Increase diversity in pine plantation monocultures

Conservation Practice 666: Forest Stand Improvement

Additional Criteria for TN:

- No supplemental plantings allowed except planting of Shortleaf pine or oak species adapted to site.
- Areas must be allowed to naturally regenerate.
- Areas cannot be used as food plot.



TENNESSEE SUPPLEMENT TO
CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION
STEWARDSHIP
PROGRAM

E666137Z6

Create patch openings to enhance wildlife cover and shelter

Conservation Practice 666: Forest Stand Improvement

Additional Criteria for TN:

- Forest openings limited to one acre in size each.
- Forest openings should be no closer than 300ft from another opening.
- Forested openings can be created on no more than 30% of eligible forested acres.

Targeted Species for regeneration include:

TREES:

WHITE OAK GROUP: Bur, Shingle, Swamp chestnut, Swamp white, Chestnut, Post, Overcup,

RED OAK GROUP: Black, Northern red, Willow, Pin, Southern red, Nuttall, Water, Laurel, Shumard, Cherrybark, Chinkapin

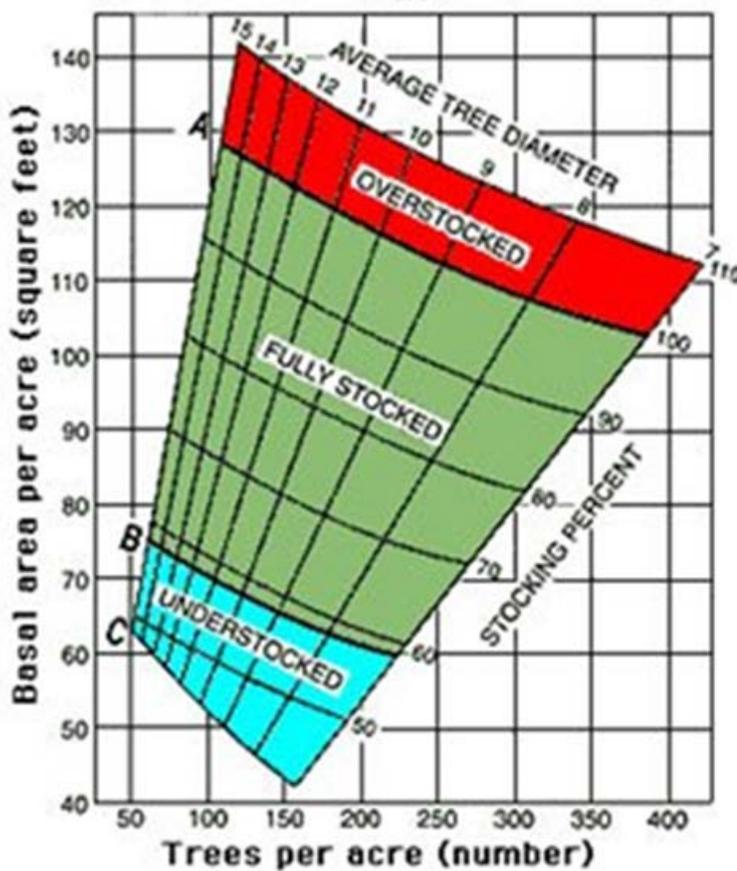
SOFT MAST TREES: Flowering dogwood, Black cherry, Blackgum, Persimmon, Mulberry, Pawpaw

PINE --Shortleaf Pine

Other trees or shrubs may be approved by the NRCS Area Biologist.

CONSERVATION STEWARDSHIP PROGRAM

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